

Registered at the G.P.O. for Transmission to Canada and Newfoundland by Magazine Post.

**VOL. 35. Ser. A.**

**Title-page and Index.  
Serial Publications examined.**

**[Issued March, 1949]**

# **THE REVIEW OF APPLIED ENTOMOLOGY.**

**SERIES A: AGRICULTURAL.**

**ISSUED BY THE COMMONWEALTH  
INSTITUTE OF ENTOMOLOGY.**

**LONDON :  
COMMONWEALTH INSTITUTE OF ENTOMOLOGY,  
41, QUEEN'S GATE, S.W.7.**

**Price 8s. net.**

**All Rights Reserved.**

# Commonwealth Agricultural Bureaux.

---

## Executive Council.

---

- Sir PATRICK R. LAIRD, C.B., F.R.S.E., *Chairman*, United Kingdom.  
A. V. HUBBARD, *Vice-Chairman*, Southern Rhodesia.  
Lieutenant-Colonel J. G. ROBERTSON, Canada.  
J. E. CUMMINS, Australia.  
E. MARSDEN, C.M.G., C.B.E., M.C., D.Sc., F.R.S., New Zealand.  
A. P. VAN DER POST, Union of South Africa.  
J. W. DULANTY, C.B., C.B.E., High Commissioner, Eire.  
A. K. CHANDA, O.B.E., Officiating Deputy High Commissioner, India.  
The High Commissioner for Pakistan.  
Sir OLIVER GOONETILLEKE, K.C.M.G., K.B.E., High Commissioner,  
Ceylon.  
Colonel W. F. RENDELL, C.B.E., Newfoundland.  
J. G. HIBBERT, M.C., Colonies, Protectorates and Mandated Territories.  
Sir HERBERT HOWARD (*Secretary*), 2, Queen Anne's Gate Buildings,  
London, S.W.1.
- 

## COMMONWEALTH INSTITUTE OF ENTOMOLOGY.

---

### Director and Editor.

W. J. HALL, M.C., D.Sc.

### Assistant Director.

T. H. C. TAYLOR, D.Sc.

### Assistant Editor.

H. S. BUSHELL, M.A.

*Head Office*—British Museum (Natural History), Cromwell Road,  
London, S.W.7.

*Publication Office and Library*.—41, Queen's Gate, London, S.W.7.



## SERIAL PUBLICATIONS EXAMINED.

---

It has been suggested that it would be of value to readers to know what journals and other publications are regularly examined in the course of the preparation of the *Review of Applied Entomology*. The present list is intended to supply that need. It is hoped that it will not only serve this purpose but prompt users of the *Review* to bring any omissions to our notice.

The Institute Library obtains, either by gift or exchange, most of the publications of a purely entomological nature and many others that contain a greater or lesser amount of entomological matter. There remain many that it does not receive, but the majority of these are available in libraries in the immediate vicinity. The disposition of those at present regularly examined is as follows :—

1. The Institute Library. These publications are prefixed by an (e) in the list.
2. The Library of the Royal Entomological Society of London, which is in the same building.
3. The various libraries housed in the British Museum (Natural History) at South Kensington.

Even in these extensive libraries there are still some publications not represented. These are to be found in other libraries in different parts of London, and they can be examined only at intervals and as time permits. They are all of a non-entomological nature, but do from time to time contain entomological articles. It is these that present the greatest difficulty and require a great deal of labour for comparatively little result. Although a certain number of papers from such sources are abstracted, some undoubtedly fail to be noticed. For this reason the publications in question have not been included in the present list, with the exception of a few of the more important that will be found prefixed by "o".

It is a pleasure to have this opportunity of acknowledging the unfailing co-operation of the librarians of the Royal Entomological Society of London and the British Museum (Natural History), who have not only given us every

possible facility, but are also constantly drawing our attention to articles of entomological interest.

The arrangement of the present list calls for little comment. Some of the journals—particularly those of German, Austrian and Far Eastern origin—have ceased publication, at least temporarily, as a result of war conditions, and it is not known if or when they will reappear. Such journals have been prefixed with an asterisk.

The insertion of the symbol (ent.) after the name of a publication means that the Institute Library either receives the entomological numbers only or retains only the papers on entomological subjects.

It is hoped to keep the present list up to date by publishing additions and amendments, with the Indexes to subsequent volumes of the *Review*.

We are very much indebted to those who send us reprints of their papers; it would make our task very much simpler if all authors would adopt the practice of sending in reprints, particularly of articles appearing in non-entomological journals.

---

### SYMBOLS.

- \* A publication the receipt of which has been interrupted.
- e A publication filed in the library of the Commonwealth Institute of Entomology.
- (ent.) Only the issues of entomological interest of the series are filed.
- o Publication examined irregularly.

Publications not prefixed by any symbol are those examined in the libraries of the Natural History Museum or the Royal Entomological Society of London.



## BRITISH COMMONWEALTH.

## UNITED KINGDOM AND CHANNEL ISLANDS.

- \* Abstract of Papers. Brighton and Hove Natural History Society, Hove.
- \* Abstracts of Dissertations approved for the Ph.D., M.Sc., and M.Litt. degrees in the University of Cambridge, Cambridge.
- Abstracts of Dissertations for the degree of Doctor of Philosophy, Oxford University, Oxford.
- \* Abstracts of Theses accepted by the University for the Higher Degrees, Aberdeen.
- \* Abstracts of Theses for Doctorates. University of Durham, Durham.
- Advancement of Science, London.
- e Advisory Leaflet. Ministry of Agriculture and Fisheries, London. (ent.)
- e Agriculture, London.
- e Annals of Applied Biology, London.
- Annals of Botany, London.
- Annals and Magazine of Natural History, London.
- e Annals of Tropical Medicine and Parasitology, Liverpool.
- e Anti-Locust Memoirs, London.
- e Bee World, Royston, Herts.
- o Bio-chemical Journal, Cambridge.
- Biological Reviews and Biological Proceedings of the Cambridge Philosophical Society, Cambridge.
- Biometrika, London.
- e British Abstracts. B III Agriculture, Foods, Sanitation, London.
- e British Intelligence Objectives Subcommittee. Bios, Cios, Fiat and Jioa reports, London. (ent.)
- British Medical Journal, London.
- Bulletin annuel de la Société jersiaise, Jersey.
- e Bulletin. Anti-Locust Research Centre, London.
- e Bulletin of Entomological Research, London.
- e Bulletin. Forestry Commission, London. (ent.)
- e Bulletin of Hygiene, London.
- e Bulletin of the Imperial Institute, London.
- e Bulletin. Ministry of Agriculture and Fisheries, London. (ent.)
- e Colonial Research Reports, London.
- Country-side, Kingston-on-Thames.
- e Economic Series. British Museum, Natural History, London.
- e Empire Cotton Growing Review, London.
- Empire Forestry Journal, London.
- o Empire Journal of Experimental Agriculture, Oxford.
- e Endeavour, London.
- Entomologist, London.
- Entomologist's Monthly Magazine, London.
- Entomologist's Record and Journal of Variation, London.
- Essex Naturalist, Stratford.
- e Forestry, London.
- e Forestry Abstracts, Oxford.
- Gardener's Chronicle and Agricultural Gazette, London.
- Geographical Journal, London.
- Glasgow Naturalist, Glasgow.
- e Growmore Leaflet. Ministry of Agriculture and Fisheries, London. (ent.)
- Hastings and East Sussex Naturalist, Hastings.
- Heredit, London and Edinburgh.
- e Hope Reports, Oxford.
- e Horticultural Abstracts, East Malling.
- Ibis. A quarterly journal of ornithology, London.
- Irish Naturalists' Journal, Belfast.
- Journal of Agricultural Science, Cambridge and London.
- e Journal of the R. Agricultural Society of England, London.
- Journal of Anatomy (and Physiology), London.
- e Journal of Animal Ecology, London.
- o Journal of the Royal Army Medical Corps, London.
- o Journal of the Royal Army Veterinary Corps, London.
- Journal of Botany, British and Foreign, London.
- e Journal of Comparative Pathology and Therapeutics, Croydon.
- Journal of the Derbyshire Archaeological and Natural History Society, London and Derby.
- Journal of Ecology, London.
- Journal of Experimental Biology, London.
- Journal of Genetics, London.
- Journal of Helminthology, London.
- e Journal of the R. Horticultural Society, London.
- o Journal of Hygiene, Cambridge.
- o Journal of the R. Institute of Public Health and Hygiene, London.
- Journal of the R. Institution of Chartered Surveyors, London.
- Journal of the Linnean Society (Botany), London.



**United Kingdom and Channel Islands** (*contd.*)

- Journal of the Linnean Society.  
(Zoology), London.
- Journal of the Manx Museum,  
Douglas, I.o.M.
- Journal of the Marine Biological  
Association of the United Kingdom,  
Plymouth.
- Journal of the R. Microscopical  
Society, London.
- o Journal of the R. Naval Medical  
Service, London.
- Journal of the Northants Natural  
History Society and Field Club,  
Northampton.
- o Journal of Physiology, Cambridge.
- e Journal of Pomology and Horti-  
cultural Science, London.
- Journal of the Quekett Microscopical  
Club, London.
- e Journal of the Society for British  
Entomology, Bournemouth.
- e Journal of Tropical Medicine and  
Hygiene, London.
- o Lancet, London.
- e Leaflet. Forest Products Research  
Laboratory, Princes Risborough,  
Bucks. (ent.)
- e Leaflet. Forestry Commission,  
London. (ent.)
- e Leaflet. Ministry of Agriculture,  
Northern Ireland, Belfast. (ent.)
- London Naturalist, London.
- Memoirs and Proceedings of the  
Manchester Literary and Philo-  
sophical Society, Manchester.
- Microscope, London.
- o Monthly Bulletin of the Ministry of  
Health and the Public Health  
Laboratory Service, London.
- Museums Journal. Organ of the  
Museums Association, London.
- Natural History Magazine. British  
Museum, London.
- Naturalist, London.
- Nature, London.
- New Phytologist, London.
- North Western Naturalist, Arbroath.
- Novitates zoologicae, London.
- Papers and Proceedings of the  
Hampshire Field Club and Archaeo-  
logical Society, Southampton.
- e Parasitology, Cambridge.
- Philosophical Transactions of the  
Royal Society, London.
- Proceedings (and Reports) of the  
Belfast Natural History and Philo-  
sophical Society, Belfast.
- Proceedings. Belfast Naturalists'  
Field Club, Belfast.
- Proceedings of the Bournemouth  
Natural Science Society,  
Bournemouth.
- Proceedings of the Cotteswold  
Naturalists' Field Club, Gloucester.
- \* Proceedings of the Coventry Natural  
History and Scientific Society,  
Coventry.
- \* Proceedings and Transactions of the  
Croydon Natural History and  
Scientific Society, Croydon.
- Proceedings of the Dorset Natural  
History and Antiquarian Field  
Club, Dorchester.
- e Proceedings of the R. Entomological  
Society of London, London.
- \* Proceedings of the Isle of Man  
Natural History and Antiquarian  
Society, Douglas, I.o.M.
- Proceedings of the Isle of Wight  
Natural History Society, Newport,  
I.o.W.
- Proceedings of the Leeds Philo-  
sophical and Literary Society,  
Leeds.
- Proceedings of the Linnean Society,  
London.
- \* Proceedings and Transactions of the  
Liverpool Biological Society, Liver-  
pool.
- Proceedings of the Liverpool  
Naturalists' Field Club, Liverpool.
- Proceedings of the R. Philosophical  
Society of Glasgow, Glasgow.
- Proceedings of the R. Physical Society  
of Edinburgh, Edinburgh.
- Proceedings of the Royal Society,  
London.
- Proceedings of the Royal Society of  
Edinburgh, Edinburgh.
- o Journal of the R. Sanitary Institute,  
London.
- Proceedings of the Somersetshire  
Archaeological and Natural History  
Society, Taunton.
- e Proceedings and Transactions of the  
South London Entomological and  
Natural History Society, London.
- \* Proceedings of the Swansea Scientific  
and Field Naturalists' Society,  
Swansea.
- Proceedings of the University of  
Durham Philosophical Society,  
Durham.
- Proceedings of the Zoological Society  
of London, London.
- e Progress Report received from Experi-  
ment Stations. Empire Cotton  
Growing Corporation, London.
- o Public Health, London.
- o Quarterly Journal of Experimental  
Physiology, London.
- Quarterly Journal of the R. Meteoro-  
logical Society, London.
- Quarterly Journal of Microscopical  
Science, London.



**United Kingdom and Channel Islands (contd.)**

- \* Record of Bare Facts. Caradoc and Severn Valley Field Club, Shrewsbury.
- e Report of the Agricultural and Horticultural Research Station. University of Bristol, Long Ashton.  
Report. Cheltenham College Natural History Society, Cheltenham.  
Report of the Christ's Hospital (West Horsham) Natural History Society, Horsham.  
Report and Transactions of the Devonshire Association for the Advancement of Science, Plymouth.
- e Report of the East Malling Research Station, East Malling.
- e Report. Experimental and Research Station, Nursery and Market Garden Industries Development Society, Ltd., Cheshunt.
- e Report. Forest Products Research Board. Department of Scientific and Industrial Research, London.  
Report. Freshwater Biological Association of the British Empire, Ambleside.  
Report of the Hastings and St. Leonards Natural History Society, Hastings.
- e Report of the London School of Hygiene and Tropical Medicine, London.  
Report of the Marlborough College Natural History Society, Marlborough.  
Report of the Oundle School Natural History Society, Oundle.
- e Report of the Rothamsted Experimental Station, Harpenden.  
Report of the Rugby School Natural History Society, Rugby.  
Report of the Scottish Marine Biological Association, Glasgow.  
Report of the Winchester College Natural History Society, Winchester.  
Report and Transactions of the Yorkshire Philosophical Society, York.
- e Review of Applied Mycology, Kew.  
Salmon and Trout Magazine, London.  
Science Progress, London.
- e\*Scientific Horticulture, Norwich.
- o\*Scientific Journal of the Royal College of Science, London.  
Scientific Publications. Freshwater Biological Association of the British Empire, Ambleside.
- e Scottish Agriculture, Edinburgh.
- o Scottish Forestry Journal, Edinburgh.
- e Soils and Fertilizers, Harpenden.  
South Eastern Naturalist, London.
- Technical Papers. Water Pollution Research. Department of Scientific and Industrial Research, London.
- \* Transactions and Proceedings of the Botanical Society of Edinburgh, Edinburgh.
- Transactions. Caradoc and Severn Valley Field Club, Shrewsbury.
- Transactions of the Cardiff Naturalists' Society, Cardiff.
- Transactions of the Carlisle Natural History Society, Carlisle.
- Transactions and Journal of the Proceedings of the Dumfriesshire and Galloway Natural History and Antiquarian Society, Dumfries.
- Transactions and Journal of the Eastbourne Natural History and Archaeological Society, Eastbourne.
- e Transactions of the R. Entomological Society of London, London.
- Transactions of the Hertfordshire Natural History Society and Field Club, Hertford.
- Transactions of the Highland and Agricultural Society of Scotland, Edinburgh.
- e Transactions. Lincolnshire Naturalists' Union, Lincoln.
- Transactions of the Linnean Society of London (Botany), London.
- Transactions of the Linnean Society of London (Zoology), London.
- Transactions of the Norfolk and Norwich Naturalists' Society, Norwich.
- Transactions and Annual Report of the North Staffordshire Field Club, Stafford.
- Transactions of the Rochdale Literary and Scientific Society, Rochdale.
- Transactions of the Royal Society of Edinburgh, Edinburgh.
- Transactions of the Shropshire Archaeological and Natural History Society, Shrewsbury.
- e Transactions of the Society for British Entomology, Bournemouth.
- e Transactions of the R. Society of Tropical Medicine and Hygiene, London.
- Transactions of the Suffolk Naturalists' Society, Norwich.
- Transactions and Proceedings of the Torquay Natural History Society, Torquay.
- Transactions of the Woolhope Naturalists' Field Club, Hereford.
- Transactions of the Yorkshire Naturalists' Union, Leeds.
- Transactions of the Zoological Society of London, London.
- e Tropical Diseases Bulletin, London.



**United Kingdom and Channel Islands***(contd.)*

- United Empire. Royal Colonial Institute Journal, London.
- Vasculum, Newcastle-upon-Tyne.
- e Veterinary Bulletin, Weybridge.
- o Veterinary Journal, London.
- Wiltshire Archaeological and Natural History Magazine, Devizes.

**DOMINIONS.****Australia.**

- e Advisory Leaflet. Division of Plant Industry. Department of Agriculture and Stock, Queensland, Brisbane. (ent.)
- e Agricultural Gazette of New South Wales, Sydney.
- e Australian Journal of Experimental Biology and Medical Science, Adelaide.
- Australian Journal of Science, Sydney.
- Australian Museum Magazine, Sydney.
- Australian Naturalist, Sydney.
- o Australian Veterinary Journal, Sydney.
- Australian Zoologist, Sydney.
- e Bulletin. Agricultural and Stock Department, Tasmania, Hobart. (ent.)
- e Bulletin. Council for Scientific and Industrial Research, Australia, Melbourne. (ent.)
- e Bulletin. Division of Plant Industry. Department of Agriculture and Stock, Queensland, Brisbane. (ent.)
- Bulletin of the Technological Museum, Sydney.
- e Entomological Leaflet. Department of Agriculture and Stock, Queensland, Brisbane.
- e Journal of the Australian Institute of Agricultural Science, Sydney.
- e Journal of the Council for Scientific and Industrial Research, Australia, Melbourne.
- e Journal of the Department of Agriculture of South Australia, Adelaide.
- e Journal of the Department of Agriculture of Victoria, Australia, Melbourne.
- e Journal of the Department of Agriculture of Western Australia, Perth.
- Journal and Proceedings of the Royal Society of New South Wales, Sydney.
- Journal of the Royal Society of Western Australia, Perth.
- e Leaflet. Department of Agriculture, Western Australia, Perth. (ent.)
- o Medical Journal of Australia, Sydney.
- Memoirs of the Australian Museum, Sydney.
- Memoirs of the National Museum, Melbourne.
- e Memoirs of the Queensland Museum, Brisbane.
- North Queensland Naturalist, Cairns.
- e Pamphlet. Division of Plant Industry. Department of Agriculture and Stock, Queensland, Brisbane. (ent.)
- e Papers and Proceedings of the Royal Society of Tasmania, Hobart.
- e Proceedings of the Linnean Society of New South Wales, Sydney.
- e Proceedings of the Royal Society of Queensland, Brisbane.
- e Proceedings of the Royal Society of Victoria, Melbourne.
- Proceedings of the R. Zoological Society of New South Wales, Sydney.
- e Queensland Agricultural Journal, Brisbane.
- e Queensland Journal of Agricultural Science, Brisbane.
- Queensland Naturalist, Brisbane.
- Records of the Australian Museum, Sydney.
- Records of the Queen Victoria Museum, Launceston.
- e Records of the South Australian Museum, Adelaide.
- \* Report of the Australian Museum, Sydney.
- e Report. Bureau of Sugar Experiment Stations, Queensland, Brisbane.
- e Report. Council for Scientific and Industrial Research, Australia, Melbourne.
- e Report of the Department of Agriculture and Stock, Queensland, Brisbane.
- e\* Report of the Department of Agriculture, Western Australia, Perth.
- e\* Report of the Director General of Public Health, Sydney.
- e\* Report. Waite Agricultural Research Institute, Adelaide.
- e Service Publications. School of Public Health and Tropical Medicine, Sydney.
- South Australian Naturalist, Adelaide.
- e Tasmanian Journal of Agriculture, Hobart.
- Trade Circular. Council for Scientific and Industrial Research. Division of Forest Products. Commonwealth of Australia, Melbourne.
- e Transactions of the Royal Society of South Australia, Adelaide.
- Transactions of the Royal Society of Victoria Melbourne.



**Australia** (*contd.*)

[Publications.] University of Queensland (Department of Biology), Brisbane.

Victorian Naturalist, Melbourne.

Western Australian Naturalist, Perth.

**Australian Territory.**

e\*New Guinea Agricultural Gazette, Rabaul.

**Canada.**

Acadian Naturalist. Bulletin of the Natural History Society of New Brunswick, Fredericton.

Annales de l'ACFAS (Association canadienne française pour l'avancement des sciences), Montreal.

e Bimonthly Progress Report. Forest Insect Investigations, Ottawa.

Bulletin of the Biological Board of Canada, Toronto.

e Bulletin. Department of Agriculture, British Columbia, Victoria, B.C. (ent.)

e Bulletin. Department of Agriculture, Ontario, Toronto. (ent.)

Bulletin. National Museum of Canada, Ottawa.

e Canadian Entomologist, Guelph, Ont. Canadian Field Naturalist, Ottawa.

e Canadian Insect Pest Review, Ottawa.

o Canadian Journal of Comparative Medicine, Gardenvale, Que.

o Canadian Journal of Public Health, Toronto.

e Canadian Journal of Research (Section D), Ottawa.

o Canadian Medical Association Journal, Montreal.

\* Contributions. Royal Ontario Museum of Zoology, Toronto.

e Forêt québécoise, Quebec.

Journal of the Biological Board of Canada, Ottawa.

Naturaliste canadien, Quebec.

\* Occasional Papers of the British Columbia Provincial Museum, Victoria, B.C.

e Proceedings of the R. Canadian Institute, Toronto.

e Proceedings of the Entomological Society of British Columbia, Victoria.

Proceedings and Transactions of the Nova Scotian Institute of Science, Halifax, N.S.

\* Proceedings and Transactions of the Royal Society of Canada, Ottawa.

e Processed Publications. Division of Entomology. Department of Agriculture, Canada, Ottawa.

e Publications. Department of Agriculture, Canada, Ottawa. (ent.)

e Report. Department of Agriculture, British Columbia, Victoria, B.C.

e Report of the Department of Lands and Forests, Nova Scotia, Halifax, N.S.

e Report of the Department of Lands and Mines, Province of New Brunswick, Fredericton, N.B.

e Report of the Entomological Society of Ontario, Toronto.

e Report of the Forest Insect Survey, Department of Agriculture, Canada, Ottawa.

e Report. Forest Protection Service, Quebec.

e Report of the Minister of Agriculture, Department of Agriculture, Canada, Ottawa.

\* Report of the Provincial Museum of Natural History and Anthropology, Province of British Columbia, Victoria, B.C.

e Report of the Quebec Society for the Protection of Plants, Quebec.

e Report of the Science Service, Department of Agriculture, Canada, Ottawa.

e Revue canadienne de biologie, Montreal.

e Scientific Agriculture, Ottawa.

e Transactions of the Royal Canadian Institute, Toronto.

Transactions of the Royal Society of Canada, Ottawa.

University of Toronto Studies, Biological Series, Toronto.

**Ceylon.**

e Administration Report of the Director of Agriculture, Ceylon, Colombo.

e\*Bulletin of the Department of Agriculture, Ceylon, Colombo. (ent.)

e Bulletin. Tea Research Institute of Ceylon, Talawakelle.

e Ceylon Journal of Science (Section B. Zoology), Colombo.

e Leaflet. Department of Agriculture, Ceylon, Colombo. (ent.)

e Report of the Medical Officer of Health, Municipality of Colombo, Colombo.

e Spolia Zeylanica, Colombo.

e Tea Quarterly, Talawakelle.

e Tropical Agriculturist, Peradeniya.

**Eire.**

e Economic Proceedings of the Royal Dublin Society, Dublin.

e Journal of the Department of Agriculture, Eire, Dublin.

Proceedings of the Royal Irish Academy, Dublin.

e Scientific Proceedings of the Royal Dublin Society, Dublin.



**India and Pakistan.**

- e\* Agriculture and Animal Husbandry in India, Delhi.
- \* Allahabad University Studies, Allahabad.
- \* Bulletin of the Department of Zoology. Panjab University, Lahore.
- e\* Bulletin. Entomological Series. Department of Agriculture, Mysore State, Bangalore.
- e\* Bulletin. Indian Lac Association for Research (Indian Lac Research Institute), Namkum, Ranchi.
- \* Bulletin of the Madras Government Museum (New Series), Madras.
- e\* Bulletin of the Mysore Coffee Experiment Station. Department of Agriculture, Bangalore. (ent.) Current Science, Bangalore.
- \* Half-yearly Journal of the Mysore University, Mysore.
- e\* Health Bulletin, India, Delhi.
- Indian Ecologist, Bombay.
- e\* Indian Forest Records (Entomology), Delhi.
- o Indian Forester, Dehra Dun.
- e Indian Journal of Agricultural Science, Delhi.
- e Indian Journal of Entomology, New Delhi.
- e Indian Journal of Malariology, Delhi.
- e Indian Journal of Medical Research, Calcutta.
- e Indian Journal of Veterinary Science and Animal Husbandry, Delhi.
- e Indian Medical Gazette, Calcutta.
- e\* Indian Medical Research Memoirs, Calcutta.
- Indian Science Abstracts, Calcutta.
- o Indian Veterinary Journal, Madras.
- e Inter-Services Stores Preservation Technical Bulletin. Ordnance Laboratories, Cawnpore. (ent.)
- \* Journal and Proceedings of the R. Asiatic Society of Bengal, Calcutta.
- Journal of the Bengal Natural History Society, Darjeeling.
- e Journal of the Bombay Natural History Society, Bombay.
- \* Journal of the Department of Science of Calcutta University, Calcutta.
- o Journal Indian Medical Association, Calcutta.
- Journal of the Sind Natural History Society, Karachi.
- Journal of the University of Bombay, Bombay.
- \* Memoirs of the Department of Zoology, University of the Punjab, Lahore.
- e Memoirs of the Entomological Society of India, New Delhi.

- e\* Memoirs of the Indian Museum, Benares. (ent.)
- e Miscellaneous Bulletins. Imperial Council of Agricultural Research, Delhi. (ent.)
- e\* Mysore Agricultural Calendar, Bangalore.
- e Mysore Agricultural Journal, Bangalore.
- Proceedings of the Indian Academy of Sciences, Bangalore.
- \* Proceedings of the Indian Science Congress, Calcutta.
- Proceedings of the National Academy of Sciences, India, Allahabad.
- Proceedings of the National Institute of Sciences of India, Calcutta.
- \* Records of the Botanical Survey of India, Calcutta.
- e Records of the Indian Museum, Benares.
- e\* Report of the Agricultural Research Scheme. Agricultural Research Laboratories. Indian Central Jute Committee, Calcutta.
- e Report. All-India Institute of Hygiene and Public Health, Calcutta.
- e Report. Imperial Council of Agricultural Research, Delhi.
- e\* Report. Department of Agriculture, Bengal, Calcutta.
- e\* Report of the Department of Agriculture, Mysore, Bangalore.
- e\* Report. (Part i.) Department of Agriculture, Punjab, Lahore.
- e Report. Department of Agriculture, Travancore, Trivandrum.
- e Report of the Indian Lac Association for Research (Indian Lac Research Institute), Namkum, Ranchi.
- e Report. Malaria Institute of India, Delhi.
- e Report. Tea Scientific Department. United Planters' Association of Southern India, Madras.
- Science and Culture, Calcutta.
- e Scientific Reports. Imperial Agricultural Research Institute, New Delhi.
- e Yearbook. Department of Agriculture, Madras.

**New Zealand.**

- Bulletin of the Dominion Museum, Wellington.
- e Dominion Museum Records in Entomology, Wellington.
- e Dominion Museum Records in Zoology, Wellington.
- e New Zealand Journal of Agriculture, Wellington.



**New Zealand (contd.)**

- e New Zealand Journal of Science and Technology, Wellington.
- o New Zealand Medical Journal, Wellington.  
Records of the Auckland Institute and Museum, Auckland.
- e Records of the Canterbury Museum, Christchurch.
- e Report of the Cawthron Institute, Nelson.
- e Report. Department of Agriculture, New Zealand, Wellington.  
Report of the Otago University Museum, Dunedin.
- Transactions and Proceedings of the Royal Society of New Zealand, Wellington.

**Union of South Africa.**

- e Annals of the Durban Museum, Durban.  
Annals of the Natal Museum, Pietermaritzburg.  
Annals of the South African Museum, Cape Town.  
Annals of the Transvaal Museum, Pretoria.  
Bothalia. National Herbarium, Pretoria.
- e Bulletin. Department of Agriculture and Forestry, Union of South Africa, Pretoria. (ent.)
- e Entomology Memoirs. Department of Agriculture, Union of South Africa, Pretoria.
- e Farming in South Africa, Pretoria.  
Journal of the Botanical Society of South Africa, Cape Town.
- e Journal of the Entomological Society of Southern Africa, Pretoria.
- o Journal of the South African Veterinary Medical Association, Johannesburg.
- \* Journal of the South West Africa Scientific Society, Windhoek.
- e Onderstepoort Journal of Veterinary Science and Animal Industry, Pretoria.  
Pamphlet. South African Biological Society, Pretoria.
- e Publications of the South African Institute for Medical Research, Johannesburg. (ent.)
- e Report of the South African Institute for Medical Research, Johannesburg.  
Report of the South African Museum, Cape Town.
- Samab. South African Museums Association Bulletin, Natal.

- e Science Bulletin. Department of Agriculture and Forestry, Union of South Africa, Pretoria. (ent.)
- o South African Journal of Medical Science, Johannesburg.
- e South African Journal of Science, Johannesburg.
- o South African Medical Journal, Cape Town.
- e South African Science, Johannesburg.  
Transactions of the Royal Society of South Africa, Cape Town.  
Tydskrif vir Wetenskap en Kuns, Bloemfontein.

**COLONIES, PROTECTORATES AND MANDATED TERRITORIES.****Basutoland.**

- e Report of the Department of Agriculture, Basutoland, Maseru.

**Bermuda.**

- e\*Agricultural Bulletin. Bermuda Department of Agriculture, Hamilton.
- e Bulletin. Department of Agriculture, Bermuda, Hamilton. (ent.)
- e Report of the Department of Agriculture, Bermuda, Hamilton.
- e Report of the Plant Pathologist, Bermuda, Hamilton.

**Borneo.**

- e\*Report of the Sarawak Museum, Sarawak.

**British Guiana.**

- e\*Agricultural Journal of British Guiana, Georgetown.
- e Report. Department of Agriculture, British Guiana, Georgetown.
- e Report of the Director of Medical Services, British Guiana, Georgetown.

**British Honduras.**

- e Report. Department of Agriculture, British Honduras, Belize.

**British West Indies.**

- e Administration Report of the Director of Agriculture, Trinidad and Tobago, Port-of-Spain.
- e\*Bulletin. Department of Agriculture, Jamaica, Kingston.  
Bulletin of the Institute of Jamaica, Kingston.
- o Caribbean Medical Journal, Port-of-Spain, Trinidad.  
Journal of the Barbados Museum and Historical Society, St. Ann's Garrison, Barbados.  
Journal of the Jamaica Agricultural Society, Kingston.

**British West Indies (contd.)**

- e Proceedings of the Agricultural Society of Trinidad and Tobago, Port-of-Spain.
- e\* Report of the Agricultural Department, Antigua, St. John.
- e\* Report on the Agricultural Department, Grenada, St. George's.
- e\* Report. Agricultural Department, Montserrat, Plymouth.
- e\* Report of the Agricultural Department, St. Kitts-Nevis, Bridgetown.
- e Report. Agricultural Department, St. Vincent, Kingstown.
- e Report. Agricultural and Marine Products Board, Bahamas, Nassau.
- e Report of the Department of Agriculture, Dominica, Roseau.
- e Report of the Department of Agriculture, Jamaica, Kingston.
- e Report. Department of Agriculture, St. Lucia, Castries.
- e Report of the Department of Science and Agriculture, Barbados, Barbados.
- e Report of the Director of Agriculture, Leeward Islands, Barbados.
- e Report on the Health Service, St. Lucia, Castries.
- e\* Report on the Medical and Sanitary Department, Grenada, St. George's.
- e Report. Medical Department, St. Vincent, Kingstown.
- e Tropical Agriculture, Trinidad.

**Cyprus.**

- e\* Annual Medical and Sanitary Report, Cyprus, Nicosia.
- e Report of the Department of Agriculture, Cyprus, Nicosia.
- e Report of the Veterinary Service, Cyprus, Nicosia.

**Fiji Islands.**

- e Agricultural Journal. Department of Agriculture, Fiji, Suva.
- e Bulletin of the Department of Agriculture, Fiji, Suva. (ent.)

**Gambia.**

- e Report of the Department of Agriculture, Gambia, Bathurst.
- e Report on the Medical and Health Services, Gambia, Bathurst.

**Gold Coast.**

- e\* Bulletin. Department of Agriculture, Gold Coast, Accra.
- e Report of the Department of Agriculture, Gold Coast, Accra.

- e Report of the Department of Animal Health, Gold Coast, Accra.
- e Report of the Medical and Sanitary Department, Gold Coast, Accra.
- e Report of the West African Cacao Research Institute, Tafo.

**Hong Kong.**

- \* Hongkong Naturalist, Hongkong.
- e\* Report of the Botanical and Forestry Department, Hong Kong.

**Kenya.**

- e Bulletin of the Stoneham Museum, Kitale.
- e East African Agricultural Journal, Nairobi.
- e East African Medical Journal, Nairobi.
- Journal of the East Africa Natural History Society, Nairobi.
- Nature in East Africa, Nairobi.
- e Report of the Department of Agriculture, Kenya, Nairobi.

**Federation of Malaya and Singapore.**

- e\* Bulletin from the Institute for Medical Research, Federated Malay States, Kuala Lumpur. (ent.)
- e Bulletin of the Raffles Museum, Singapore.
- e Gardens' Bulletin, Singapore.
- e\* General Series. Department of Agriculture, Straits Settlements and Federated Malay States, Kuala Lumpur.
- e\* Journal of the Federated Malay States Museums, Kuala Lumpur.
- Journal of the Malayan Branch of the Royal Asiatic Society, London.
- e Malayan Agricultural Journal, Kuala Lumpur.
- e Malayan Forester, Kuala Lumpur.
- \* Malayan Nature Journal, Kuala Lumpur.
- e Medical Journal of Malaya, Singapore.
- e Report of the Department of Agriculture, Malayan Union, Kuala Lumpur.
- e\* Report of the Institute for Medical Research, Federated Malay States, Taiping.
- e\* Report of the Malaria Advisory Board, Federated Malay States, Kuala Lumpur.
- e\* Report of the Veterinary Department, Straits Settlements and Federated Malay States, Kuala Lumpur.
- e\* Scientific Series. Department of Agriculture, Straits Settlements and Federated Malay States, Kuala Lumpur.



**Malta.**

Archivum Melitense. Journal of the Malta Historical and Scientific Society, Valetta.

- e\* Report of the Department of Agriculture, Malta, Valetta.

**Mauritius.**

- e\* Bulletin. Department of Agriculture, Mauritius (General Series), Réduit. (ent.)

- e Bulletin. Department of Agriculture, Mauritius (Scientific Series), Réduit. (ent.)

Mauritius Institute Bulletin, Port Louis.

- e Report of the College of Agriculture, Mauritius, Port Louis.  
e Report of the Department of Agriculture, Mauritius, Port Louis.  
e Revue agricole de l'Île Maurice, Port Louis.

**Nigeria.**

Nigerian Field. Journal of the Nigerian Field Society, London.

- e Report on the Agricultural Department, Nigeria, Lagos.  
e Report on the Medical Services, Nigeria, Lagos.  
e Report of the Veterinary Department, Nigeria, Lagos.

**Northern Rhodesia.**

- e Report of the Director of Agriculture, Northern Rhodesia, Lusaka.  
e\* Report of the Veterinary Department, Northern Rhodesia, Lusaka.

**Nyasaland.**

- e Annual Medical and Sanitary Report, Nyasaland, Zomba.  
e Nyasaland Agricultural Quarterly Journal, Blantyre.  
e Report of the Department of Agriculture, Nyasaland, Zomba.  
e Report of the Veterinary Department, Nyasaland, Zomba.

**Pacific Islands.**

- e\* Report. Department of Agriculture, British Solomon Islands Protectorate, Tulagi.  
e\* Report. Director of Agriculture, Tonga Islands, Nukualofa.

**Seychelles.**

- e Report of the Department of Agriculture, Seychelles, Victoria.  
e Report of the Medical Department, Seychelles, Victoria.

**Sierra Leone.**

- e Annual Medical Report, Sierra Leone, Freetown.

- e Report of the Department of Agriculture, Sierra Leone, Freetown.

**Somaliland.**

- e\* Report of the Veterinary and Agricultural Department, Somaliland, Burao.

**Southern Rhodesia.**

- e Bulletin. Department of Agriculture, Southern Rhodesia, Salisbury. (ent.)  
e Occasional Papers of the National Museum of Southern Rhodesia, Bulawayo.  
Proceedings and Transactions of the Rhodesia Scientific Association, Salisbury.  
e Report of the Chief Veterinary Surgeon, Southern Rhodesia, Salisbury.  
e\* Report of the Director of Veterinary Research, Southern Rhodesia, Salisbury.  
e Rhodesia Agricultural Journal, Salisbury.

**Tanganyika Territory.**

- e Entomological Leaflet. Department of Agriculture, Tanganyika Territory, Dar-es-Salaam.  
e Pamphlet. Department of Agriculture, Tanganyika Territory, Dar-es-Salaam. (ent.)  
e Report of the Department of Agriculture, Tanganyika Territory, Dar-es-Salaam.  
e\* Report of the Department of Veterinary Science and Animal Industry, Tanganyika Territory, Dar-es-Salaam.  
Tanganyika Notes and Records, Dar-es-Salaam.

**Uganda.**

- e Report of the Department of Agriculture, Uganda Protectorate, Entebbe.  
e Report of the Medical Department, Uganda Protectorate, Entebbe.  
e Report of the Veterinary Department, Uganda Protectorate, Entebbe.  
Uganda Journal, Kampala.

**Zanzibar.**

- e Medical and Sanitary Report, Zanzibar Protectorate, Zanzibar.  
e Report of the Department of Agriculture, Zanzibar Protectorate, Zanzibar.

## CONDOMINIUM.

**Anglo-Egyptian Sudan.**

- e\*Report of the Agricultural Research Service, Sudan, Khartoum.
- Sudan Notes and Records, Khartoum.

## FOREIGN COUNTRIES.

**Argentine Republic.**

- Acta zoologica lilloana, Tucumán.
- \* Actas de la Academia nacional de ciencias en Córdoba, Córdoba.
- e Almanaque. Ministerio de agricultura argentina, Buenos Aires.
- Anales del Museo argentino de ciencias naturales Bernardino Rivadavia, Buenos Aires.
- Anales del Museo de La Plata, La Plata.
- e Anales de la Sociedad científica argentina, Buenos Aires.
- \* Anales de la Sociedad científica de Santa Fé, Santa Fé.
- Boletín de la Academia nacional de ciencias en Córdoba, Córdoba.
- o Boletín de la Academia nacional de medicina de Buenos Aires, Buenos Aires.
- e Boletín. Estación experimental agrícola, Tucumán. (ent.)
- e Boletín mensual. Dirección nacional de algodón. Ministerio de agricultura, Argentina, Buenos Aires.
- e Circular. Estación experimental agrícola, Tucumán. (ent.)
- Holmbergia. Revista del Centro de estudiantes del doctorado en ciencias naturales, Buenos Aires.
- [Publicaciones.] Instituto de genética. Facultad de agronomía y veterinaria, Buenos Aires.
- e [Publicaciones.] Instituto de sanidad vegetal, Buenos Aires. (ent.)
- Memorias del Museo de Entre Ríos, Paraná.
- e Notas del Museo de La Plata (Zoología), La Plata.
- e Physis. Revista de la Sociedad argentina de ciencias naturales, Buenos Aires.
- e Publicaciones. Estación experimental agrícola, Tucumán. (ent.)
- e Publicaciones misceláneas. Estación experimental agrícola, Tucumán. (ent.)
- e Publicaciones. Misión de estudios de patología regional argentina (Jujuy). Universidad de Buenos Aires, Buenos Aires. (ent.)
- Revista argentina de agronomía, Buenos Aires.

- o Revista de la Asociación médica argentina, Buenos Aires.
- e Revista de la Facultad de agronomía y veterinaria, Buenos Aires.
- e Revista industrial y agrícola de Tucumán, Tucumán.
- e Revista del Instituto bacteriológico "Dr. Carlos G. Malbran," Buenos Aires.
- o Revista de medicina y ciencias afines, Buenos Aires.
- e Revista del Museo de La Plata (N.S. Zoología), La Plata.
- e Revista de la Sociedad entomológica argentina, Buenos Aires.
- e\*Revista sudamericana de entomología aplicada, Buenos Aires.

**Austria.**

- e\*Abhandlungen der Zoologisch-botanischen Gesellschaft in Wien, Vienna.
- e\*Annalen des Naturhistorischen Museums in Wien, Vienna.
- \* Anzeiger der Akademie der Wissenschaften (Math.-nat. Kl.), Vienna.
- \* Archiv für klassifikatorische und phylogenetische Entomologie, Vienna.
- \* Biologia generalis. Archives internationales de biologie générale, Vienna.
- \* Carinthia II, Klagenfurt.
- Chromosoma. Zeitschrift für Zellkern- und Chromosomenforschung, Vienna.
- \* Denkschriften der Akademie der Wissenschaften (Math.-nat. Kl.), Vienna.
- \* Entomologischer Anzeiger, Vienna.
- e Flugblatt. Bundesanstalt für Pflanzenschutz in Wien, Vienna.
- e Koleopterologische Rundschau, Vienna.
- Mikroskopie, Vienna.
- e\*Mitteilungen. Bundesanstalt für Pflanzenschutz in Wien, Vienna.
- \* Mitteilungen des Naturwissenschaftlichen Vereins für Steiermark, Graz.
- Österreichische zoologische Zeitschrift, Vienna.
- e Pflanzenschutzberichte, Vienna.
- \* Sitzungsberichte der Akademie der Wissenschaften in Wien, Vienna.
- Umwelt. Zeitschrift der biologischen Station Wilhelminenberg, Wilhelminenberg.
- e\*Verhandlungen der Zoologisch-botanischen Gesellschaft in Wien, Vienna.
- \* Wiener entomologische Zeitung, Vienna.
- e Zeitschrift der Wiener entomologischen Gesellschaft, Vienna.
- e Zentralblatt für das Gesamtgebiet der Entomologie, Linz.



**Belgium.**

- e\* Acta biologica belgica, Brussels.
- \* Annales du Musée du Congo belge, Brussels.
- e Annales de la Société belge de médecine tropicale, Brussels.
- \* Annales de la Société scientifique de Bruxelles, Louvain.
- Annales de la Société R. zoologique de Belgique, Brussels.
- \* Annuaire de l'Académie des sciences, des lettres et des beaux-arts de Belgique, Brussels.
- Archives de l'Institut botanique de l'Univ. de Liège, Brussels.
- Biologisch Jaarboek, Antwerp.
- \* Bulletin de l'Académie R. de Belgique (Classe des sciences), Brussels.
- e Bulletin de l'Institut agronomique et des Stations de Recherches de Gembloux, Gembloux.
- e Bulletin du Musée R. d'histoire naturelle de Belgique, Brussels. (ent.)
- Bulletin des séances. Institut royal colonial belge, Brussels.
- e Bulletin (et Annales) de la Société entomologique de Belgique, Brussels.
- Cellule, Louvain.
- Exploration du Parc national Albert, Brussels.
- e Lambillionia. Revue mensuelle de l'Union des entomologistes belges, Brussels.
- Mémoires de l'Académie Royale de Belgique (Classe des sciences, Série II), Brussels.
- e Mémoires du Musée R. d'histoire naturelle de Belgique, Brussels. (ent.)
- \* Mémoires de la Société R. des sciences de Liège, Brussels.
- \* Osiris, Bruges.
- e Parasitica, Gembloux.
- e Publications de l'Institut belge pour l'amélioration de la betterave, Tirlemont. (ent.)
- \* Recueil de l'Institut zoologique Torley-Rousseau, Brussels.

**Belgian Congo.**

- e Bulletin agricole du Congo Belge, Brussels.
- \* Bulletin de la Société des recherches congolaises, Brazzaville.
- e Recueil de Travaux de Sciences médicales au Congo Belge, Léopoldville.
- e Revue de zoologie et de botanique africaines, Brussels.

**Brazil.**

- e Agronomia, Rio de Janeiro.
- Anais da Academia brasileira de ciencias, Rio de Janeiro.
- e Anais da Faculdade de medicina de São Paulo, São Paulo.
- e Anais da Sociedade de biologia de Pernambuco, Recife.
- o Arquivos de biologia, São Paulo.
- e Arquivos de biologia e tecnologia, Curitiba.
- e Arquivos de higiene e saúde pública, São Paulo.
- e Arquivos do Instituto biológico de defesa agrícola e animal, São Paulo.
- o Arquivos do Instituto químico - biológico do Estado de Minas Gerais, Belo Horizonte.
- e Arquivos do Museu nacional, Rio de Janeiro.
- e Arquivos do Museu paranaense, Curitiba.
- e Arquivos do Serviço florestal, Rio de Janeiro.
- e Arquivos de zoologia do Estado de São Paulo, São Paulo.
- e Biológico, São Paulo.
- e Boletim de agricultura, São Paulo.
- e Boletim fitossanitário, Rio de Janeiro.
- e\* Boletim. Instituto central de fomento econômico da Bahia, Bahia. (ent.)
- e Boletim do Instituto Vital Brazil, Niteroi.
- e Boletim do Ministério da agricultura, Rio de Janeiro.
- e Boletim do Museu nacional (Nova série. zoologia), Rio de Janeiro. (ent.)
- o Brasil-medico, Rio de Janeiro.
- o Hospital, Rio de Janeiro.
- e Memórias do Instituto Butantan, São Paulo.
- e Memórias do Instituto Oswaldo Cruz, Rio de Janeiro.
- e Notas agrícolas, São Paulo. (ent.)
- e Papéis avulsos do Departamento de zoologia, São Paulo.
- e Publicações avulsas. Museu paranaense, Curitiba. (ent.)
- e Publicações médicas, São Paulo. (ent.)
- e Revista brasileira de biologia, Rio de Janeiro.
- e Revista de entomologia, Rio de Janeiro.
- e\* Revista florestal, Rio de Janeiro.
- e Revista medico-cirurgica do Brasil, Rio de Janeiro. (ent.)
- Revista do Museu nacional, Rio de Janeiro.
- e Rodriguésia, Rio de Janeiro.
- e Summa brasiliensis biologiae, Rio de Janeiro. (ent.)
- Zoologia, São Paulo.

**Bulgaria.**

- Annuaire de l'Université de Sofia, Sofia.
- e Bulletin de la Chambre de culture nationale (Série : biologie, agriculture et silviculture), Sofia.
- e\*Mitteilungen der Bulgarischen entomologischen Gesellschaft in Sofia, Sofia.
- e\*Mitteilungen aus den königl. naturwissenschaftlichen Instituten in Sofia, Sofia.

**Burma.**

- e\*Bulletin. Department of Agriculture, Burma, Rangoon. (ent.)
- \* Journal of the Burma Research Society, Rangoon.
- e\*Report on the Civil Veterinary Department, Burma, Rangoon.
- e\*Report on Working Plans, Silviculture and Entomology in Burma, Rangoon.

**Chile.**

- \* Actes de la Société scientifique du Chili, Santiago.
- e Agricultura técnica, Santiago.
- \* Anales del Museo nacional de Chile, Santiago.
- \* Anales de la Universidad de Chile, Santiago.
- e Biológica, Santiago.
- e Boletín del Instituto bacteriológico de Chile, Santiago.
- Boletín del Museo nacional de historia natural, Santiago.
- Boletín de la Sociedad de biología de Concepción (Chile), Concepción.
- o Revista chilena de higiene y medicina preventiva, Santiago.
- e Revista chilena de historia natural, Santiago.
- \* Revista universitaria, Santiago.

**China.**

- e Acta brevia sinensia, London.
- Biological Bulletin of Fukien Christian University, Foochow.
- \* Bulletin of the Fan Memorial Institute of Biology, Peiping.
- e Bulletin. Taiwan Agricultural Research Institute, Taipeh. (ent.)
- \* China Journal, Chungking.
- e Chinese Medical Journal, Shanghai.
- \* Contributions from the Biological Laboratory of the Science Society of China, Nanking.
- e Fukien Agricultural Journal, Foochow.
- Journal of the Shanghai Science Institute, Shanghai.

- \* Journal of the Society of Tropical Agriculture, Taiwan.
- \* Journal of the West China Border Research Society, Chengtu, Szechwan.
- e Lingnan Science Journal, Canton.
- e\*Memoirs of the Faculty of Science and Agriculture, Taihoku Imperial University, Taihoku, Formosa (Taiwan). (ent.)
- Notes d'entomologie chinoise, Musée Heude, Shanghai.
- e\*Peking Natural History Bulletin, Peking.
- e\*Report. Agricultural Research Institute, Taihoku, Formosa (Taiwan).
- e Sinensia Institute of Zoology, Shanghai.
- e\*Special Publications. Lingnan Natural History Survey and Museum, Canton. (ent.)
- e Technical Bulletin. Taiwan Agricultural Research Institute, Taipeh. (ent.)
- e\*Transactions of the Natural History Society of Formosa (Taiwan), Taihoku.

**Colombia.**

- Caldasia, Bogotá.
- e Revista de la Academia colombiana de ciencias exactas, físicas y naturales, Bogotá.
- e Revista Facultad nacional de agronomía, Medellín.

**Cuba.**

- e Boletín. Estación experimental agronómica, Cuba, Santiago de las Vegas.
- e Circular. Estación experimental agronómica, Cuba, Santiago de las Vegas.
- Memorias de la Sociedad cubana de historia natural "Feliipe Poey," Havana.
- e Revista Kuba de medicina tropical y parasitología, Havana.

**Czechoslovakia.**

- Acta Facultatis rerum naturalium Universitatis Carolinae, Prague.
- \* Acta Musei nationalis Pragae, Prague.
- e Acta Societatis entomologicae Českosloveniae, Prague.
- Acta Societatis scientiarum naturalium Moraviae, Brno.
- Bulletin de l'École supérieure d'agronomie Brno. Faculté d'agriculture, Brno.
- \* Bulletin international. Académie tchèque des sciences, Prague.
- e Folia entomologica, Brno.



**Czechoslovakia** (*contd.*)

- \* Lotos. Naturwissenschaftliche Zeitschrift hrsg. vom Deutschen Naturwiss. - medizinischen Verein f. Böhmen "Lotos," Prague.
- e Ochrana Rostlin, Prague.  
Práce Moravské Přírodovědecké Společnosti, Brno.  
Přírodovědný Sborník, Turčianský Svätý Martin.
- \* Publications of the Medical Faculty Brno, Brno.
- \* Publikationen des Königrätzer naturwissenschaftlichen Museums in Königrätz, Königrätz.
- \* Rozpravy České Akademie Věd a Umění, Prague.
- e Sborník entomologického oddělení zemskeho Musea v Praze, Prague.  
Sborník Klubu Přírodovědeckého v Brně, Brno.
- \* Sborník Přírodovědeckého Klubu v Třebíči, Třebíč.
- \* Studien aus dem Gebiete der allgemeinen Karstforschung, der wissenschaftlichen Höhlenkunde, der Eiszeitforschung und den Nachbargebieten, Brno.
- \* Verhandlungen des Naturforschenden Vereines in Brünn, Brno.
- \* Věstník České Akademie Věd a Umění, Prague.
- e Věstník České zoologické Společnosti v Praze, Prague.
- \* Věstník Královské České Společnosti Náuk, Prague.

**Denmark.**

- e Aarsoversigt, samlet ved Statens Plantepatologiske Forsøg, Copenhagen.
- e Beretning fra Statens Plantepatologiske Forsøg, Copenhagen. (ent.) Biologiske Meddelelser. K. Danske Videnskabernes Selskab, Copenhagen.
- Botanisk Tidsskrift (Journal de botanique), Copenhagen.
- Compte rendu des travaux du Laboratoire de Carlsberg, Copenhagen.
- e Entomologiske Meddelelser, Copenhagen.
- Flora og Fauna, Copenhagen.
- \* Folia limnologica scandinavica, Copenhagen.
- Kongelige Danske Videnskabernes Selskabs Skrifter, Copenhagen.
- e Maanedsoversigt over Plantesydomme, Copenhagen.
- \* Meddelelser om Grønland, af Kommissionen for Ledelsen af de geologiske og geografiske Undersøgelser i Grønland, Copenhagen.

- e Meddelelser. Statens Plantepatologiske Forsøg, Copenhagen. (ent.) Report of the Danish Biological Station to the Ministry of Agriculture and Fisheries, Copenhagen.
- \* Videnskabelige Meddelelser fra Dansk naturhistorisk Forening i København, Copenhagen.

**Ecuador.**

- e\* Boletín. Ministerio de Agricultura, Ecuador, Quito. (ent.)
- \* Revista del Colegio nacional Vicente Rocafuerte, Guayaquil.

**Egypt.**

- \* Bulletin of the Faculty of Science Fouad I University, Cairo.
- \* Bulletin de l'Institut d'Égypte, Cairo.
- e\* Bulletin. Ministry of Agriculture, Egypt, Cairo.
- e Bulletin de la Société Fouad Ier d'Entomologie, Cairo.
- o Journal of the R. Egyptian Medical Association, Cairo.
- \* Mémoires de l'Institut d'Égypte, Cairo. Proceedings of the Egyptian Academy of Sciences, Cairo.

**Finland.**

- e Acta entomologica fennica, Helsinki.
- Acta forestalia fennica, Helsinki.
- Acta Societatis pro fauna et flora fennica, Helsinki.
- Acta Societatis scientiarum fennicae, Helsinki.
- e Acta zoologica fennica, Helsinki.
- e Annales entomologici fennici, Helsinki.
- \* Annales Universitatis Turkuensis, Turku.
- Annales zoologici Societatis zoologicae-botanicae fennicae Vanamo, Helsinki.
- \* Bidrag till kännedom om Finlands Natur och Folk. Utgifna af Finska Vetenskaps-Societeten, Helsinki.
- Commentationes biologicae (Societas scientiarum fennica), Helsinki.
- Luonnon Tutkija, Helsinki.
- e Memoranda Societatis pro fauna et flora fennica, Helsinki.
- e\* Notulae entomologicae, Helsinki.
- e\* Valtion Maatalouskoetoiminnan Julkaisuja, Helsinki.
- e\* Valtion Maatalouskoetoiminnan Tiedonantoja, Helsinki.

**France (including Algeria).**

- Abeille, Paris.
- \* Actes de la Société linnéenne de Bordeaux, Bordeaux.
- \* Afra. Cahiers d'entomologie, Paris.
- e Agronomie tropicale, Nogent-sur-Marne.
- \* Amateur de papillons, Paris.

**France (including Algiers) (contd.)**

- Annales agronomiques, Paris.
- \* Annales de l'Association des naturalistes de Levallois-Perret, Levallois-Perret.
  - e Annales de l'École nationale d'agriculture de Montpellier, Montpellier.
  - e Annales des épiphyties, Versailles.
  - Annales de la Faculté des sciences de Marseille, Marseilles.
  - e Annales de l'Institut agricole et des Services de recherches et d'expérimentation agricoles de l'Algérie, Algiers.
  - Annales de l'Institut océanographique, Paris.
  - Annales de l'Institut Pasteur, Paris.
  - \* Annales du Musée colonial de Marseille, Marseilles.
  - e Annales de parasitologie humaine et comparée, Paris.
  - Annales des sciences naturelles, Paris.
  - e Annales de la Société entomologique de France, Paris.
  - Annales de la Société d'histoire naturelle de Toulon, Toulon.
  - Annales de la Société des sciences naturelles de la Charente-Maritime, La Rochelle.
  - Année biologique, Paris.
  - Archives d'anatomie microscopique, Paris.
  - Archives de biologie, Paris.
  - e Archives de l'Institut Pasteur d'Algérie, Algiers.
  - \* Archives de morphologie générale et expérimentale, Paris.
  - \* Archives du Muséum d'histoire naturelle, Paris.
  - Archives de zoologie expérimentale et générale, Paris.
  - \* Botaniste, Paris.
  - \* Bulletin de l'Association des naturalistes de la vallée du Loing, Moret-sur-Loing.
  - \* Bulletin biologique de la France et de la Belgique, Paris.
  - e Bulletin de l'Institut Pasteur, Paris.
  - Bulletin du Laboratoire maritime de Dinard, Rennes.
  - Bulletin mensuel de la Société linnéenne de Lyon, Lyons.
  - Bulletin du Musée d'histoire naturelle de Marseille, Marseilles.
  - Bulletin du Muséum d'histoire naturelle, Paris.
  - Bulletin scientifique de Bourgogne, Dijon.
  - e Bulletin semestriel de l'Office national anti-acridien, Algiers.
  - Bulletin de la Société des amis des sciences naturelles et du Muséum de Rouen, Rouen.

- e Bulletin de la Société entomologique de France, Paris.
- \* Bulletin de la Société d'étude des sciences naturelles d'Elbeuf, Elbeuf.
- Bulletin de la Société d'études scientifiques d'Angers, Angers.
- Bulletin de la Société d'études scientifiques de l'Aude, Carcassonne.
- e Bulletin de la Société d'histoire naturelle de l'Afrique du Nord, Algiers.
- Bulletin de la Société d'histoire naturelle des Ardennes, Charleville.
- \* Bulletin de la Société d'histoire naturelle de Colmar, Colmar.
- \* Bulletin de la Société d'histoire naturelle du Doubs, Besançon.
- \* Bulletin de la Société d'histoire naturelle de la Moselle, Metz.
- \* Bulletin de la Société d'histoire naturelle de Toulouse, Toulouse.
- \* Bulletin de la Société linnéenne de Normandie, Caen.
- \* Bulletin. Société linnéenne de Provence, Marseilles.
- \* Bulletin de la Société linnéenne de la Seine-Maritime, Le Havre.
- e Bulletin de la Société de pathologie exotique, Paris.
- \* Bulletin de la Société des sciences historiques et naturelles de l'Yonne, Auxerre.
- Bulletin de la Société des sciences de Nancy, Nancy.
- \* Bulletin de la Société des sciences naturelles et médicales de Seine-et-Oise, Versailles.
- Bulletin de la Société des sciences naturelles de l'ouest de la France, Nantes.
- Bulletin de la Société scientifique de Bretagne, Rennes.
- Bulletin de la Société scientifique du Dauphiné, Grenoble.
- Bulletin de la Société zoologique de France, Paris.
- Collections du Musée de zoologie de Nancy, Nancy.
- \* Compte rendu de l'Association française pour l'avancement des sciences, Paris.
- \* Compte rendu du Congrès des sociétés savantes de Paris et des départements. Section des sciences, Paris.
- Compte rendu hebdomadaire des séances de l'Académie des sciences, Paris.
- e Compte rendu hebdomadaire des séances de l'Académie d'agriculture de France, Paris.



**France (including Algeria) (cont'd.)**

- e Compte rendu hebdomadaire des séances et mémoires de la Société de biologie, Paris.
- Compte rendu sommaire des séances de la Société de biogéographie, Paris.
- e Coton et fibres tropicales, Paris.
- Échange. Revue linnéenne, Moulins.
- e Encyclopédie entomologique, Paris. Entomologiste, Paris.
- \* Faune des colonies françaises, Paris.
- Faune de l'Empire français, Paris.
- e Médecine tropicale, Marseilles.
- \* Mélanges exotico-entomologiques, Moulins.
- Mémoires de l'Académie des sciences, arts et belles-lettres de Dijon, Dijon.
- \* Mémoires de l'Académie des sciences, belles-lettres et arts de Lyon, Lyons.
- \* Mémoires de l'Académie des sciences, inscriptions et belles-lettres de Toulouse, Toulouse.
- \* Mémoires de l'Académie des sciences de l'Institut de France, Paris.
- \* Mémoires du Muséum national d'histoire naturelle, Paris.
- e Mémoires de l'Office national anti-acridien, Algiers.
- Mémoires de la Société de biogéographie, Paris.
- \* Mémoires de la Société d'émulation du Doubs, Besançon.
- \* Mémoires de la Société nationale des sciences naturelles et mathématiques de Cherbourg, Cherbourg.
- \* Mémoires de la Société des sciences de Nancy, Nancy.
- \* Mémoires de la Société des sciences physiques et naturelles de Bordeaux, Bordeaux.
- Miscellanea entomologica, Paris.
- La Nature, Paris.
- Nouvelles archives du Muséum d'histoire naturelle de Lyon, Lyons.
- Novitates entomologicae, Paris.
- Procès-verbaux des séances de la Société des sciences physiques et naturelles de Bordeaux, Bordeaux.
- \* Procès-verbaux de la Société linnéenne de Bordeaux, Bordeaux.
- \* Publications du Muséum national d'histoire naturelle, Paris.
- \* Résultats des campagnes scientifiques accomplies par le Prince Albert I, Monaco.
- e Revue d'élevage et de médecine vétérinaire des pays tropicaux, Paris.
- e Revue française d'entomologie, Paris.
- Revue générale de botanique, Paris.
- e Revue internationale de botanique appliquée et d'agriculture tropicale, Paris.
- e Revue du paludisme et de médecine tropicale, Paris.

- e Revue de pathologie végétale et d'entomologie agricole, Paris.
- \* Revue des sciences naturelles d'Auvergne, Clermont-Ferrand.
- e Revue scientifique du Bourbonnais et du centre de la France, Moulins.
- e Revue technique de la protection des végétaux, Versailles.
- e\* Revue de zoologie agricole et appliquée, Talence.
- Riviera scientifique, Nice.
- Sciences. Revue de l'Association française pour l'avancement des sciences, Paris.
- \* Travaux des Naturalistes de la vallée du Loing, Moret-sur-Loing.
- \* Travaux de la Station zoologique de Wimereux, Paris.
- French Colonial Empire.**
- e Archives de l'Institut Pasteur du Maroc, Casablanca.
- e\* Archives de l'Institut Pasteur de Tunis, Tunis.
- e\* Archives des Instituts Pasteur d'Indochine, Saigon.
- \* Bulletin de l'Académie Malgache, Tananarive.
- e\* Bulletin économique de l'Indochine, Hanoi.
- e\* Bulletin économique de Madagascar, Tananarive.
- e Bulletin de l'Institut français d'Afrique noire, Paris.
- e Bulletin de l'Institut d'hygiène du Maroc, Rabat.
- Bulletin de la Société d'études océaniques, Papeete (Tahiti).
- e Bulletin de la Société des sciences naturelles du Maroc, Rabat.
- Bulletin. Station océanographique de Salambô, Tunis.
- e Fruits et primeurs de l'Afrique du nord, Casablanca. (ent.)
- \* Mémoires de l'Académie Malgache, Tananarive.
- e\* Mémoires de la Société des sciences naturelles du Maroc, Rabat.
- e Notes africaines. Bulletin d'information et de correspondance de l'Institut français d'Afrique noire, Dakar. (ent.)
- e Publications. Institut Pasteur de la Guyane et du Territoire de l'Inini, Cayenne. (ent.)
- e Rapport sur le fonctionnement de l'Institut Pasteur du Maroc, Casablanca.
- e Revue agricole de l'Île de la Réunion, Saint-Denis. (ent.)
- e Revue agricole . . . Nouvelle-Calédonie, Nouméa. (ent.)
- e\* Revue médicale française d'Extrême-Orient, Hanoi.

**Germany.**

- \* Abhandlungen der Bayerischen Akademie der Wissenschaften (Math.-Phys. Kl.), Munich.
- \* Abhandlungen aus dem Gebiet der Auslandskunde, Hamburg.
- \* Abhandlungen aus dem Gebiet der Naturwissenschaften hrsg. vom Naturwissenschaftlichen Verein in Hamburg, Hamburg.
- \* Abhandlungen der Gesellschaft der Wissenschaften zu Göttingen, Berlin.
- \* Abhandlungen der Heidelberger Akademie der Wissenschaften (Math.-Phys. Kl.), Heidelberg.
- \* Abhandlungen aus dem Landesmuseum der Provinz Westfalen. Museum für Naturkunde, Münster in Westfalen.
- \* Abhandlungen und Berichte aus dem Museum für Natur- und Heimatkunde (u. d. Naturwissenschaftl. Verein in Magdeburg), Magdeburg.
- \* Abhandlungen der Naturforschenden Gesellschaft zu Görlitz, Görlitz.
- \* Abhandlungen hrsg. vom Naturwissenschaftlichen Verein zu Bremen, Bremen.
- \* Abhandlungen der Preussischen Akademie der Wissenschaften (Phys.-Math. Kl.), Berlin.
- \* Abhandlungen der Sächsischen Akademie der Wissenschaften (Math.-Phys. Kl.), Leipzig.
- e Abhandlungen hrsg. von der Senckenbergischen Naturforschenden Gesellschaft, Frankfurt am Main. (ent.)  
Additamenta Faunistica Coleopterorum. Mitteilungen aus dem coleopterologischen Privatlaboratorium von Ch.S. Papp, Hamburg.
- e\* Amtliche Pflanzenschutzbestimmungen, Berlin.
- \* Anatomischer Anzeiger, Jena.
- e Anzeiger für Schädlingskunde, Berlin.
- e\* Arbeiten aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin.
- e\* Arbeiten über morphologische und taxonomische Entomologie aus Berlin-Dahlem, Berlin.
- e\* Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem, Berlin.
- \* (Wilhelm Roux) Archiv für Entwicklungsmechanik der Organismen, Leipzig.
- \* Archiv für Hydrobiologie, Stuttgart.
- \* Archiv für Mikrobiologie, Berlin.
- \* Archiv für Naturgeschichte, Leipzig.
- \* Archiv für Protistenkunde, Jena.
- \* Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg, Rostock.
- \* Beihefte zum Botanischen Zentralblatt, Cassel.
- e\* Beihefte der "Zeitschrift für hygienische Zoologie", Berlin.
- \* Beiträge zur Naturdenkmalpflege, Berlin.
- \* Beiträge zur naturkundlichen Forschung im Oberrheingebiet, Karlsruhe i. B.
- \* Bericht der Bayerischen Botanischen Gesellschaft zur Erforschung der heimischen Flora, Munich.
- \* Bericht der Deutschen Botanischen Gesellschaft, Berlin.
- e\* Bericht. Institut für angewandte Botanik. Abteilung für Pflanzenschutz, Hamburg.
- \* Bericht der Naturforschenden Gesellschaft in Bamberg, Bamberg.
- \* Bericht der Naturforschenden Gesellschaft zu Freiburg i. Br., Freiburg i. Br.
- \* Bericht des Naturwissenschaftlichen Vereins in Dessau, Dessau.
- \* Bericht der Oberhessischen Gesellschaft für Natur- u. Heilkunde, Giessen.
- \* Bericht der Physikalisch-medizinischen Gesellschaft zu Würzburg, Würzburg.
- \* Bericht über die Verhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig (Math.-phys. Kl.), Leipzig.
- e\* Bibliographie der Pflanzenschutzliteratur (Biol. Reichsanst. f. Land- u. Forstwirtschaft), Berlin.
- e\* Biologie der Tiere Deutschlands, Berlin.
- Biologisches Zentralblatt, Leipzig.
- Bombus, Hamburg.
- \* Botanisches Archiv, Berlin.
- \* Botanisches Zentralblatt, Jena.
- e\* Decheniana, Bonn.
- \* Deutsche entomologische Zeitschrift, Berlin.
- e\* Deutsche entomologische Zeitschrift, Iris, Dresden.
- e\* Deutsche tropenmedizinische Zeitschrift, Leipzig.
- \* Dohrniana, Stettin.
- e\* Entomologische Beihefte aus Berlin-Dahlem, Berlin.
- e\* Entomologische Blätter, Krefeld.
- \* Entomologische Rundschau, Stuttgart.
- \* Entomologische Zeitschrift, Frankfurt am Main.



**Germany (contd.)**

- e\*Entomologisches Jahrbuch, Frankfurt am Main.
- \* Ergebnisse der Biologie, Berlin.
- e\*Flugblatt. Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin.
- \* Forschungen und Fortschritte. Korrespondenzblatt der Deutschen Wissenschaft und Technik, Berlin.
- Fortschritte der Zoologie, Jena.
- \* Gegenbaurs morphologisches Jahrbuch, Leipzig.
- e\*Hygienische Zoologie. Monographien zur Biologie und Bekämpfung der Gesundheits- und Wohnungs-Schädlinge, Leipzig.
- \* Jahrbuch für wissenschaftliche Botanik, Berlin.
- \* Jahresbericht der Gesellschaft von Freunden der Naturwissenschaften in Gera, Gera.
- \* Jahresbericht der Schlesischen Gesellschaft für vaterländische Kultur, Breslau.
- \* Jenaische Zeitschrift für Naturwissenschaft, Jena.
- \* Kakteenkunde, Neudamm.
- e\*Kranke Pflanze, Dresden.
- \* Märkische Tierwelt, Berlin.
- e\*Merkblätter. Biologische Reichsanstalt für Land- und Forstwirtschaft, Berlin.
- e Merkblätter. Reichsinstitut für Forst- und Holzwirtschaft, Reinbek, Bez. Hamburg. (ent.)
- \* Mikrokosmos, Stuttgart.
- e\*Mitteilungen der Biologischen Reichsanstalt für Land- und Forstwirtschaft, Berlin.
- \* Mitteilungen der Deutschen Entomologischen Gesellschaft, Berlin.
- \* Mitteilungen der Geographischen Gesellschaft und des Naturhistorischen Museums in Lübeck, Lübeck.
- e\*Mitteilungen der Gesellschaft für Vorratsschutz, Berlin.
- \* Mitteilungen über Höhlen- und Karstforschung, Berlin.
- e\*Mitteilungen der Münchner Entomologischen Gesellschaft, Munich.
- \* Mitteilungen für Naturkunde und Naturschutz, Freiburg i. Br.
- \* Mitteilungen des Naturwissenschaftlichen Museums der Stadt Aschaffenburg, Jena.
- \* Mitteilungen des Naturwissenschaftlichen Vereins für Neu-Vorpommern u. Rügen in Greifswald, Berlin.
- e Mitteilungen. Reichsinstitut für Forst- und Holzwirtschaft, Reinbek, Bez. Hamburg. (ent.)
- \* Mitteilungen des Thüringischen Botanischen Vereins, Weimar.
- e\*Mitteilungen aus dem Zoologischen Museum in Berlin, Berlin.
- e\*Mitteilungen aus dem Zoologischen Staatsinstitut und Zoologischen Museum in Hamburg, Hamburg.
- e\*Monographien zur angewandten Entomologie, Berlin.
- \* Museumskunde, Berlin.
- \* Nachrichten von der Gesellschaft der Wissenschaften zu Göttingen (Math.-Phys. Kl.), Berlin.
- e\*Nachrichten über Schädlingbekämpfung der I. G. Farbenindustrie Aktiengesellschaft, Leverkusen b. Köln.
- e Nachrichtenblatt für den Deutschen Pflanzenschutzdienst, Berlin.
- \* Natur am Niederrhein, Krefeld.
- e Natur und Volk, Frankfurt am Main.
- \* Naturae Novitates, Berlin.
- \* Naturschutz, Berlin.
- \* Naturwissenschaften, Berlin.
- \* Nova Acta Leopoldina, Halle a. S.
- \* Parnassiana, Neubrandenburg.
- Phytopathologische Zeitschrift, Berlin.
- e\*Praktische Blätter für Pflanzenbau und Pflanzenschutz, Munich.
- \* Protoplasma, Leipzig.
- \* Schriften des Naturwissenschaftlichen Vereins für Schleswig-Holstein, Kiel.
- e Senckenbergiana, Frankfurt am Main.
- \* Siruna Seva, Berlin.
- \* Sitzungsberichte der Bayerischen Akademie der Wissenschaften zu München (Math.-phys. Kl.), Munich.
- \* Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin, Berlin.
- \* Sitzungsberichte der Heidelberger Akademie der Wissenschaften, Heidelberg.
- \* Sitzungsberichte der Preussischen Akademie der Wissenschaften zu Berlin, Berlin.
- \* Stettiner entomologische Zeitung, Stettin.
- e\*Tropenpflanzer, Berlin.
- e\*Verhandlungen der Deutschen Gesellschaft für angewandte Entomologie, Berlin.
- \* Verhandlungen der Deutschen Zoologischen Gesellschaft, Leipzig.
- \* Verhandlungen der Gesellschaft Deutscher Naturforscher und Ärzte, Berlin.
- \* Verhandlungen der Internationalen Vereinigung für theoretische und angewandte Limnologie, Stuttgart.
- \* Verhandlungen des Naturhistorisch-medizinischen Vereins zu Heidelberg, Heidelberg.

**Germany (contd.)**

- \* Veröffentlichungen aus dem Deutschen Kolonial- und Uebersee-Museum Bremen, Bremen.
- e\* Zeitschrift für angewandte Entomologie, Berlin.
- \* Zeitschrift für Botanik, Jena.
- \* Zeitschrift über Höhlen- und Karstforschung, Berlin.
- e\* Zeitschrift für hygienische Zoologie und Schädlingsbekämpfung, Berlin.
- \* Zeitschrift für induktive Abstammungs- und Vererbungslehre, Berlin.
- \* Zeitschrift für mikroskopisch-anatomische Forschung, Leipzig.
- Zeitschrift für Morphologie und Ökologie der Tiere, Berlin.
- \* Zeitschrift für Naturforschung, Wiesbaden.
- \* Zeitschrift für Naturwissenschaften, Halle a.S.
- \* Zeitschrift für Parasitenkunde (Abt. F. Zeitschrift für wissenschaftliche Biologie), Berlin.
- e Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz, Stuttgart.
- \* Zeitschrift für Säugetierkunde, Berlin.
- \* Zeitschrift für Tierpsychologie, Berlin.
- \* Zeitschrift für vergleichende Physiologie, Berlin.
- e Zeitschrift für Weltforstwirtschaft, Reinbek, Bez. Hamburg.
- e\* Zeitschrift für wissenschaftliche Insektenbiologie, Berlin.
- \* Zeitschrift für wissenschaftliche Mikroskopie und für mikroskopische Technik, Leipzig.
- \* Zeitschrift für wissenschaftliche Zoologie, Leipzig.
- e Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene, Jena.
- \* Zoogeographica, Jena.
- \* Zoologica, Stuttgart.
- \* Zoologische Garten, Leipzig.
- \* Zoologische Jahrbücher, Jena.
- \* Zoologischer Anzeiger, Leipzig.
- \* Zoologischer Bericht, Jena.

**Greece.**

- e\* Acta Instituti et Musei zoologici Universitatis Atheniensis, Athens.
- \* Praktika tes Akademias Athenon, Athens.

**Guatemala.**

- Anales de la Sociedad de geografia e historia de Guatemala, Guatemala.
- e Revista agricola, Guatemala. (ent.)

**Hungary.**

- \* Acta Universitatis Szegediensis, Szeged.
- \* Állattani Közlemények, Budapest.
- e Annales historico-naturales musei nationalis hungarici, Budapest.
- Archiva biologica hungarica, Tihany.
- \* Botanikai Közlemények, Budapest.
- e Folia entomologica hungarica, Budapest.
- e Kísérletügyi Közlemények, Budapest.
- e\* Magyar Királyi Állami Rovartani Állomás, Budapest.
- \* Matematikai és Természettudományi Értesítő, Budapest.
- \* Matematikai és Természettudományi Közlemények, Budapest.

**Iceland.**

- \* Greinar, Reykjavík.
- Náttúrufræðingurinn, Reykjavík.
- Vísindafélags Íslendinga, Reykjavík.

**Iran see Persia.****Iraq.**

- e\* Bulletin. Department of Agriculture, Iraq, Baghdad. (ent.)

**Italy.**

- e Annali della Facoltà di agraria, Pisa.
- e Annali della Facoltà di agraria di Portici, Portici.
- e Annali d'igiene, Rome.
- e Annali del Museo civico di storia naturale Giacomo Doria, Genoa.
- e Annali della sperimentazione agraria, Rome.
- e Annuario R. Museo zoologico della R. Università di Napoli, Naples.
- Archivio botanico per la sistematica, fitogeografia e genetica, Forlì.
- o Archivio di scienze biologiche, Bologna.
- Archivio zoologico (italiano), Turin.
- \* Atti della R. Accademia Gioenia di scienze naturali, Catania.
- e Atti della Accademia nazionale dei Lincei (Rendiconti. Memorie. Cl. di sci. fis. mat. e nat.), Rome.
- \* Atti dell'Accademia Peloritana, Messina.
- \* Atti della R. Accademia Pontaniana, Naples.
- \* Atti della R. Accademia delle scienze fisiche e matematiche, Naples.
- \* Atti e memorie R. Accademia di scienze, lettere ed arti Modena, Modena.
- \* Atti e memorie della R. Accademia di scienze, lettere ed arti in Padova, Padua.



**Italy (contd.)**

- \* Atti della R. Accademia di scienze, lettere ed arti di Palermo, Palermo.
- Atti della R. Accademia delle scienze di Torino, Turin.
- \* Atti della Fondazione scientifica Cagnola dalla sua istituzione in Poi, Milan.
- \* Atti dell'Istituto botanico della Università di Pavia, Milan.
- Atti. Istituto veneto di scienze, lettere ed arti Venezia (Scienze mat. e nat.), Venice.
- Atti del Museo civico di storia naturale di Trieste, Trieste.
- Atti della Società italiana di scienze naturali, e del Museo civico di storia naturale, Milan.
- \* Atti della Società dei naturalisti e matematici, Modena.
- \* Atti della Società di scienze e lettere di Genova, Genoa.
- \* Atti della Società toscana di scienze naturali residente in Pisa. (a) Memorie. (b) Processi verbali. Pisa.
- Bollettino dell'Associazione romana di entomologia, Rome.
- e Bollettino dell'Istituto di entomologia della R. Università degli studi di Bologna, Bologna.
- e Bollettino del R. Laboratorio di entomologia agraria di Portici, Portici.
- e\* Bollettino del Laboratorio sperimentale e R. Osservatorio di fitopatologia, Turin.
- e\* Bollettino del Laboratorio di zoologia generale agraria del R. Istituto superiore agrario di Portici, Portici.
- \* Bollettino dei Musei di zoologia e di anatomia comparata della R. Università, Genoa.
- \* Bollettino dei Musei di zoologia e di anatomia comparata della R. Università, Turin.
- \* Bollettino delle sedute dell'Accademia Gioenia di scienze naturali in Catania, Catania.
- \* Bollettino della Società adriatica di scienze naturali in Trieste, Trieste.
- e Bollettino della Società entomologica italiana, Genoa.
- e Bollettino della Società italiana di biologia sperimentale, Naples.
- \* Bollettino della Società di naturalisti in Napoli, Naples.
- \* Bollettino della Società di scienze naturali ed economiche di Palermo, Palermo.
- e\* Bollettino della Società veneziana di storia naturale, Venice.
- e\* Bollettino della R. Stazione di patologia vegetale, Rome.
- e\* Bollettino della R. Stazione sperimentale di gelsicoltura e bachicoltura di Ascoli Piceno, Ascoli Piceno.
- e\* Bollettino di zoologia, pubblicato dall'Unione zoologica italiana, Naples.
- e Bollettino di zoologia agraria e bachicoltura della R. Università di Milano, Turin.
- e\* Circolare. Istituto di entomologia della R. Università degli studi di Bologna, Bologna.
- e\* Circolare. R. Laboratorio di entomologia agraria di Portici, Portici.
- \* Giornale di scienze naturali ed economiche di Palermo, Palermo.
- \* Marcellia. Rivista internazionale di cecidologia, Avellino.
- \* Memoria. R. Comitato talassografico italiano, Venice.
- \* Memorie della R. Accademia delle scienze di Torino, Turin.
- \* Memorie dell'Istituto italiano di idrobiologia Dott. Marco de Marchi, Milan.
- \* Memorie del R. Istituto lombardo di scienze e lettere (Cl. di scienze matematiche e naturali), Milan.
- \* Memorie del R. Istituto veneto di scienze, lettere ed arti, Venice.
- \* Memorie del Museo di storia naturale della Venezia tridentina, Trento.
- e Memorie della Società entomologica italiana, Genoa.
- \* Memorie della Società italiana di scienze naturali e del Museo civico di storia naturale di Milano, Milan.
- Monitore zoologico italiano, Florence.
- Natura, Milano.
- \* Pubblicazioni della Stazione zoologica di Napoli, Milan.
- \* Rassegna faunistica, Rome.
- e Redia. Giornale di entomologia, Florence.
- \* Rendiconti dell'Accademia delle scienze fisiche e matematiche, Naples.
- \* Rendiconti dell'Istituto lombardo di scienze e lettere, Milan.
- e Ricerca scientifica e ricostruzione, Rome. (ent.)
- e Rivista di agricoltura subtropicale e tropicale, Florence.
- Rivista di biologia, Perugia.
- e Rivista di biologia coloniale, Rome.
- e Rivista italiana d'igiene, Pisa.
- e Rivista di malariologia, Rome.
- e Rivista di parassitologia, Rome.

**Italy** (*contd.*)

- Scientia, Bologna.
- Scientia genetica, Turin.
- \* Studi Trentini di scienze naturali, Trento.
- \* Thalassia, Venice.

**Former Italian Colonies.**

- e Bollettino della Società italiana di medicina e igiene tropicale (Sezione Eritrea), Asmara.

**Japan.**

- e\*Acta Japonica medicinae tropicalis, Taihoku.
- e\*Annotationes zoologicae Japonenses, Tokyo.
- e\*Bericht des Ohara Instituts für landwirtschaftliche Forschungen, Kurashiki.
- \* Biogeographica, Tokyo.
- \* Botanical Magazine, Tokyo.
- \* Botany and Zoology, Tokyo.
- \* Bulletin of the Biogeographical Society of Japan, Tokyo.
- e\*Bulletin. Hokkaido Agricultural Experiment Station, Sapporo. (ent.)
- \* Bulteno scienca de la Fakultato terkultura, Kjuŝu Imperia Universitato, Fukuoka.
- \* Entomological World, Tokyo.
- \* Insect World, Gifu.
- e\*Insecta matsumurana, Sapporo.
- \* Japanese Journal of Botany, Tokyo.
- e\*Japanese Journal of Experimental Medicine, Tokyo.
- e\*Japanese Journal of Medical Sciences. VI. Bacteriology and Parasitology. Tokyo.
- e\*Japanese Journal of Zoology, Tokyo.
- e\*Journal of the Imperial Agricultural Experiment Station, Nishigahara, Tokyo.
- e\*Journal of the College of Agriculture, Imp. University of Tokyo, Tokyo.
- \* Journal. Department of Agriculture. Kyushu Imperial University, Fukuoka.
- e\*Journal of the Faculty of Agriculture, Hokkaido Imp. University, Sapporo.
- \* Journal of the Faculty of Science, Hokkaido Imperial University, Sapporo.
- \* Journal of the Imperial Fisheries Institute, Tokyo.
- \* Journal of Science of the Hiroshima University. Ser. B. Zoology. Hiroshima.
- e\*Kitasato Archives of Experimental Medicine, Tokyo.

- \* Kontyû. Tokyo Entomological Society, Tokyo.
- \* Lansania. Journal of Arachnology and Zoology, Tokyo.
- e\*Memoirs of the College of Agriculture, Kyoto Imp. University, Kyoto. (ent.)
- \* Memoirs of the College of Science, Kyoto Imp. University, Kyoto.
- e\*Mushi [Organ of the Fukuoka Entomological Society], Fukuoka.
- \* Natural Science and Museum, Tokyo.
- e\*Nippon no Kôchû, Shibuya, Tokyo.
- \* Oyo-Kontyû, Tokyo.
- \* Proceedings of the Imperial Academy (of Japan), Tokyo.
- e\*Report of the Hokkaido Agricultural Experiment Station, Sapporo.
- e\*Research Bulletin of the Imperial Tokyo Sericultural College, Tokyo.
- \* Science Reports of the Tôhoku Imp. University, Sendai.
- \* Science Reports of the Tokyo Bunrika Daigaku (Sect. B.), Tokyo.
- \* Studies from the Tokugawa Institute, Tokyo.
- e\*Tenthredo. Acta entomologica. Shinomiya Yamashina.
- \* Transactions of the Kansai Entomological Society, Osaka.
- e\*Transactions of the Sapporo Natural History Society, Sapporo.
- \* Zoological Magazine, Tokyo.

**Korea.**

- \* Journal of the Chosen Natural History Society, Keijo.

**Mexico.**

- e Anales de la Escuela nacional de ciencias biológicas, Mexico.
- e Anales del Instituto de biología, Mexico.
- \* Anales del Museo nacional de arqueología, historia, y etnografía de México, Mexico.
- e Boletín. Escuela nacional de ciencias biológicas, Mexico.
- e Ciencia, Mexico.
- e Fitófilo, San Jacinto.
- \* Folletos de divulgación científica. Instituto de biología, Chapultepec.
- e Medicina, Mexico. (ent.)
- \* Memorias y revista de la Academia nacional de ciencias "Antonio Alzate", Mexico.
- e Revista del Instituto de salubridad y enfermedades tropicales, Mexico.
- e Revista de la Sociedad mexicana de historia natural, Mexico.
- e Tierra, Mexico.



**Netherlands.**

- Acta Biotheoretica, Leiden.
- e Acta Leidensia edita cura et sumptibus Scholae Medicinae tropicae, Leiden.
- Archives du Musée Teyler, Haarlem.
- Archives néerlandaises des sciences exactes et naturelles. Archives néerlandaises de physiologie de l'homme et des animaux, Amsterdam.
- Archives néerlandaises de zoologie, Leiden.
- e Bericht van de Afdeeling Handelsmuseum van het Indisch Instituut te Amsterdam, Amsterdam. (ent.)
- \* Capita zoologica, The Hague.
- e Entomologische Berichten. Nederlandsche entomologische vereeniging, Amsterdam.
- Fauna van Nederland, Leiden.
- \* Genetica, The Hague.
- Handelingen van de hydrobiologische Club, Amsterdam.
- Levende natuur, Amsterdam.
- e Mededeelingen. Comité ter bestudering en bestrijding van insectenplagen in bosschen, Oosterbeek.
- e Mededeelingen. Instituut voor toegepast biologisch onderzoek in de natuur, Oosterbeek. (ent.)
- e Mededeelingen van de Landbouwhoogeschool te Wageningen, Wageningen.
- \* Natura. Organ der Nederlandsche natuurhistorische vereeniging, Amsterdam.
- e Natuurhistorisch maandblad, Maas-tricht.
- Proceedings. Koninklijke Nederlandsche Akademie van wetenschappen, Amsterdam.
- Temminckia, Leiden.
- e Tijdschrift voor entomologie, Amsterdam.
- e Tijdschrift over plantenziekten, Wageningen.
- Vakblad voor biologen, Helder.
- Verhandelingen der Koninklijke Nederlandsche Akademie van wetenschappen, Amsterdam.
- e Verslagen en mededeelingen van den Plantenziektenkundigen dienst te Wageningen, Wageningen.
- e Vlugschriften. Plantenziektenkundigen dienst te Wageningen, Wageningen.
- e Zoologische mededeelingen. Rijksmuseum van natuurlijke historie te Leiden, Leiden.

**Netherlands Colonies.**

- \* Annales du Jardin botanique de Buitenzorg, Buitenzorg, Java.
- e\*Archief voor de Suikerindustrie in Nederland en Nederlandsch-Indië, Pasoeroean, Java.
- e\*Bulletin van het Deli Proefstation te Medan, Medan, Sumatra.
- e Bulletin. Departement Landbouwproefstation in Suriname, Paramaribo.
- e\*Entomologische mededeelingen van Nederlandsch-Indië, Buitenzorg, Java.
- e\*Geneeskundig tijdschrift voor Nederlandsch-Indië, Batavia, Java.
- e\*Mededeelingen van het Algemeen Proefstation der A[lgemeene] V[ereeniging van] R[ubberplanters ter] O[ostkust van] S[umatra]. Algemeene serie. Batavia, Java. (ent.)
- e\*Mededeelingen van het Algemeen Proefstation voor den landbouw, Buitenzorg, Java.
- e\*Mededeelingen van het Besoekisch Proefstation, Djember, Java.
- e\*Mededeelingen van het Deli Proefstation te Medan, Medan, Sumatra.
- e Mededeelingen. Dep. Landbouwproefstation, Suriname, Paramaribo. (ent.)
- e\*Mededeelingen van den Dienst der volksgezondheid in Nederlandsch-Indië, Batavia-Weltevreden, Java.
- e\*Mededeelingen van het Proefstation voor vorstenlandsche tabak, Klaten, Java. (ent.)
- \* Natuurwetenschappelijk tijdschrift voor Nederlandsch-Indië, Buitenzorg, Java.
- e Treubia, Buitenzorg, Java.
- \* Tropische natuur. Organ van de Nederlandsch-Indische natuurhistorische vereeniging, Weltevreden, Java.
- e\*Veeartsenijkundige mededeelingen. Veeartsenijkundig Laboratorium. Departement van Landbouw, nijverheid en handel, Nederlandsch-Indië, Buitenzorg, Java. (ent.)
- e\*Verslag van Cultuurafdeling van het Proefstation voor de Java-suikerindustrie, Soerabaia, Java.
- e Vlugschrift. Deli Proefstation te Medan, Medan, Sumatra.

**Norway.**

- Archiv for Mathematik og Naturvidenskab, Oslo.
- Avhandlingar utgitt av det Norske videnskaps-akademi i Oslo, Oslo.

**Norway (contd.)**

- Bergens Museums Årbog, Bergen.  
 \* Bergens Museums Skrifter, Bergen.  
 \* Hvalrådets Skrifter. Scientific results of Marine Biological Research. Oslo.  
 Kongelige Norske Videnskabers Selskabs Forhandlinger, Trondheim.  
 Kongelige Norske Videnskabers Selskabs Skrifter, Trondheim.  
 \* Meddelelser fra det Zoologiske Museum, Oslo.  
 e Norsk entomologisk Tidsskrift, Oslo.  
 e Nytt Magasin for Naturvidenskapene, Oslo.  
 Skrifter utgitt av det Norske Videnskaps-Akademi i Oslo, Oslo.  
 \* Skrifter om Svalbard og Ishavet, Oslo.  
 Tromsø Museums Årshefter, Tromsø.  
 \* Tromsø Museums Skrifter, Tromsø.

**Palestine.**

- o Acta Medica Orientalia, Jerusalem.  
 e Bulletin. Agricultural Research Station, Jewish Agency for Palestine, Rehovot.  
 Bulletin. Independent Biological Laboratories, Palestine, Tel-Aviv.  
 Jerusalem Naturalists' Club Bulletins, Jerusalem.  
 o Journal of the Palestine-Arab Medical Association, Jerusalem.  
 e Report of the Department of Agriculture, Forests and Fisheries, Palestine, Jerusalem.  
 e Report. Department of Health, Palestine, Jerusalem.

**Papal State.**

- \* Acta pontificiae Academiae scientiarum, Rome.  
 \* Memoriae pontificiae Academiae scientiarum Novi Lincae, Rome.

**Paraguay.**

- \* Anales científicos paraguayos, Asunción.  
 \* Anales del Instituto nacional de Parasitología, Asunción.

**Persia (Iran).**

- e Archives de l'Institut d'Hessarek, Hessarek-Karadj.  
 e Entomologie et phytopathologie appliquées, Teheran.

**Peru.**

- e Boletín de la Dirección general de agricultura, Perú, Lima.  
 e Boletín. Estación experimental agrícola de La Molina, Lima.  
 Boletín del Museo de historia natural "Javier Prado," Lima.  
 e Circular. Estación experimental agrícola de La Molina, Lima.

- e Informe. Estación experimental agrícola de La Molina, Lima.  
 e\*Memorias. Estación experimental agrícola de La Molina, Lima.

**Philippines.**

- o Monthly Bulletin. Bureau of Health, Manila.  
 \* Natural and Applied Science Bulletin. University of the Philippines, Manila.  
 e Philippine Agriculturist, Los Baños.  
 e Philippine Journal of Agriculture, Manila.  
 e Philippine Journal of Science, Manila.  
 \* Report of the Bureau of Science, Philippine Islands, Manila.

**Poland.**

- \* Acta Societatis Botanicorum Poloniae, Warsaw.  
 e Annales musei zoologici polonici, Warsaw.  
 e Annales Universitatis Mariae Curie-Skłodowska (Sect. C, D, E), Lublin.  
 \* Archiwum Nauk biologicznych Towarzystwa Naukowego Warszawskiego, Lwów.  
 \* Archiwum Towarzystwa naukowego we Lwów, Lwów.  
 e Bulletin entomologique de la Pologne, Wrocław.  
 \* Bulletin international de l'Académie des sciences de Cracovie (de l'Académie polonaise des sciences), Cracow.  
 Chrońmy Przyrodę Ojczyzny, Cracow.  
 \* Compte rendu mensuel des séances de la Classe des sciences mathématiques et naturelles. Académie polonaise des sciences et des lettres, Cracow.  
 \* Compte rendu des séances de la Société des sciences et des lettres de Varsovie, Warsaw.  
 e Fragmenta faunistica Musei zoologici polonici, Warsaw.  
 \* Kosmos. Czasopismo Polskiego Towarzystwa przyrodników imienia Kopernika, Lwów.  
 \* Mémoires de la classe des sciences mathématiques et naturelles, Académie polonaise des sciences et des lettres, Cracow.  
 e\*Mémoires de l'Institut national polonais d'économie rurale à Puławy, Puławy.  
 \* Prace Komisji Matematyczno-Przyrodniczej. Poznańskie Towarzystwo Przyjaciół Nauk, Poznań.  
 e\*Rocznik ochrony roślin, Puławy.  
 \* Schriften der Naturforschenden Gesellschaft in Danzig, Danzig.



**Poland (contd.)**

- \* Schriften der Physikalisch-ökonomischen Gesellschaft zu Königsberg in Pr., Königsberg.
- e Travaux et comptes rendus. Institut polonais des recherches forestières, Warsaw. (ent.)
- \* Zoologia poloniae, Lwów.

**Portugal.**

- e Agronomia Lusitana, Sacavem.
- Amatus Lusitanus, Lisbon.
- e Anais do Instituto de medicina tropical, Lisbon.
- Archives portugaises des sciences biologiques, Lisbon.
- e Arquivos do Instituto bacteriológico Câmara Pestana, Lisbon.
- Arquivos do Museu Bocage, Lisbon.
- \* Boletim da Academia das ciências de Lisboa, Lisbon.
- e Boletim. Junta nacional da cortiça, Lisbon. (ent.)
- e Brotéria. Série trimestral. Ciências naturais, Lisbon.
- Bulletin de la Société portugaise des sciences naturelles, Lisbon.
- \* Memórias da Academia das ciências de Lisboa, Lisbon.
- e Memórias e estudos do Museu zoológico da Universidade de Coimbra, Coimbra.
- \* Naturalia, Lisbon.
- o Portugaliae Acta biologica, Lisbon.
- o Revista de medicina veterinaria, Lisbon.

**Portuguese Colonies.**

- e\* Arquivos da Escola médico-cirurgica de Nova Goa (Serie A & B), Bastora.

**Rumania.**

- \* Analele Academiei Române. Memoriile Secțiunii Științifice, Bucharest.
- e Analele Institutului de cercetări agronomice al României, Bucharest.
- \* Annales scientifiques de l'Université de Jassy, Jassy.
- e Archives roumaines de pathologie expérimentale et de microbiologie, Bucharest.
- Buletinul Facultății de Științe din Cernăuți, Czernowitz.
- \* Buletinul de informații al Grădinii botanice și al Muzeului botanic de la Universitatea din Cluj, Cluj.
- \* Buletinul de informații al Societății Naturaliștilor din România, Bucharest.
- Buletinul Muzeului regional al Basarabiei, Chișinău.

e\* Buletinul Societății Naturaliștilor din România, Bucharest.

e\* Buletinul Societății de Științe din Cluj, Cluj.

\* Bulletin du Musée régional de Bessarabie, Chișinău.

\* Bulletin de la Section scientifique de l'Académie roumaine, Bucharest.

\* Compte rendu des séances de l'Institut des sciences de Roumanie, Bucharest.

\* Études et recherches. Académie roumaine, Bucharest.

e Notationes biologicae, Bucharest.

\* Publicațiunile Fondului Vasilie Adamachi. Academia Română, Bucharest.

\* Studii și cercetări. Academia română, Bucharest.

\* Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt, Hermannstadt.

**Slam (Thailand).**

- \* Journal of the Thailand Research Society of natural History, Bangkok.

**Spain.**

- \* Anales del Instituto de ciencias naturales "José de Acosta," Madrid.
- e Boletín del Instituto nacional de investigaciones agronómicas, Madrid.
- e Boletín de patología vegetal y entomología agrícola, Madrid.
- Boletín de la R. Sociedad española de historia natural, Madrid.
- Boletín de la Universidad de Granada, Granada.
- e Eos. Revista española de entomología, Madrid.
- e Medicina colonial, Madrid.
- \* Memorias de la R. Academia de ciencias y artes de Barcelona, Barcelona.
- e Memorias de la Academia de ciencias exactas, físico-químicas y naturales de Zaragoza, Saragossa. (ent.)
- e Publicaciones (Divulgaciones). Estación de fitopatología agrícola de La Coruña, Corunna. (ent.)
- e Publicaciones del Instituto de biología aplicada, Barcelona.
- e Publicaciones. Servicio de lucha contra la langosta. Ministerio de agricultura, Madrid.
- e Revista de la Academia de ciencias exactas, físico-químicas y naturales de Zaragoza, Saragossa.

**Spain (contd.)**

- e Revista ibérica de parasitología, Granada.
- o Revista de sanidad e higiene pública, Madrid.
- \* Revista de la Universidad de Madrid, Madrid.
- \* Trabajos del Instituto de ciencias naturales "José de Acosta," Madrid.

**Sweden.**

- o Acta medica Scandinavica, Stockholm.
- o Acta physiologica Scandinavica, Stockholm.
- Acta Universitatis Lundensis, Lund.
- Acta zoologica, Stockholm.
- Arkiv för botanik, Uppsala.
- e Arkiv för zoologi, Stockholm.
- Årstryck. Göteborgs Museum, Göteborg.
- Botaniska notiser, Lund.
- e Entomologisk tidskrift, Stockholm.
- Fauna och flora, Uppsala.
- e Flygblad. Statens Västskyddsanstalt, Stockholm.
- Göteborgs Kungl. vetenskaps- och vitterhetssamhälles handlingar, Göteborg.
- Hereditas, genetiskt arkiv, Lund.
- Kungliga Svenska Vetenskapsakademins årsbok, Stockholm.
- Kungliga Svenska Vetenskapsakademins handlingar, Stockholm.
- Kungliga Svenska Vetenskapsakademins skrifter i naturskyddsärenden, Stockholm.
- e Meddelanden från Statens Skogsforskningsinstitut, Stockholm.
- e Meddelanden. Statens Västskyddsanstalt, Stockholm.
- Nova Acta Regiae Societatis scientiarum Upsaliensis, Uppsala.
- e Opuscula entomologica, Lund.
- Skånes natur, Lund.
- Svensk botanisk tidskrift, Stockholm.
- Svenska Linnésällskapets Årsskrift, Uppsala.
- \* Uppsala Universitets Årsskrift, Uppsala.
- e Västskyddsnotiser. Statens Västskyddsanstalt, Stockholm.
- e Zoologiska bidrag från Uppsala, Uppsala.

**Switzerland.**

- e Acta tropica, Basle.
- Actes de la Société helvétique des sciences naturelles, Zurich.
- Archives des sciences physiques et naturelles, Geneva.
- Bericht. Naturhistorisches Museum der Stadt Bern, Berne.

Bericht der Schweizerischen Botanischen Gesellschaft, Berne.

- \* Bulletin de l'Institut national genevois, Geneva.
- \* Bulletin de la Murithienne. Soc. valaisanne des sciences naturelles, Sion.
- e Bulletin de la Société lépidoptérologique de Genève, Geneva.
- \* Bulletin de la Société neuchâteloise des sciences naturelles, Neuchâtel.
- Candollea. Organe du Conservatoire et du Jardin botaniques de la ville de Genève, Geneva.
- Denkschriften der Schweizerischen Naturforschenden Gesellschaft, Zurich.
- Experientia, Basle.
- o Helvetica medica acta, Basle.
- \* Jahrbuch der St. Gallischen Naturwissenschaftlichen Gesellschaft, St. Gallen.
- e Landwirtschaftliches Jahrbuch der Schweiz, Berne.
- Mémoires de la Société helvétique des sciences naturelles, Zurich.
- Mémoires de la Société neuchâteloise des sciences naturelles, Neuchâtel.
- Mémoires de la Société vaudoise des sciences naturelles, Lausanne.
- Mitteilungen der Aargauischen Naturforschenden Gesellschaft, Aarau.
- Mitteilungen der Naturforschenden Gesellschaft in Bern, Berne.
- Mitteilungen der Naturforschenden Gesellschaft in Luzern, Lucerne.
- \* Mitteilungen der Naturwissenschaftlichen Gesellschaft Thun, Thun.
- Mitteilungen der Naturwissenschaftlichen Gesellschaft in Winterthur, Winterthur.
- e Mitteilungen der Schweizerischen Entomologischen Gesellschaft, Berne.
- \* Mitteilungen der Thurgauischen Naturforschenden Gesellschaft, Frauenfeld.
- Neujahrsblatt hrsg. von der Naturforschenden Gesellschaft in Zürich, Zurich.
- \* Rapport. Musées d'histoire naturelle et Jardins botaniques de Lausanne, Lausanne.
- Résultats des recherches scientifiques entreprises au Parc national suisse, Aarau.
- e Revue romande d'agriculture, de viticulture et d'arboriculture, Lausanne.
- Revue suisse de zoologie et Annales de la Société zoologique suisse et du muséum d'histoire naturelle de Genève, Geneva.



**Switzerland (contd.)**

- Schweizerische medizinische Wochenschrift, Basle.
- o Schweizerische Zeitschrift für Pathologie und Bakteriologie, Basle.
- Verhandlungen der Naturforschenden Gesellschaft in Basel, Basle.
- Vierteljahresschrift der Naturforschenden Gesellschaft in Zürich, Zurich.
- Zeitschrift für Hydrologie, Hydrographie, Hydrobiologie, Fischereiwissenschaft, Aarau.

**Thailand see Siam.****Turkey.**

- e Çalışmalar. Ankara yüksek ziraat enstitüsü, Ankara. (ent.)
- e Mahsul hekimii, Izmir.
- Revue de la Faculté des sciences de l'Université d'Istanbul, Istanbul.
- e Turkish Bulletin of Hygiene and Experimental Biology, Ankara.
- e Ziraat vekâleti neşriyatı, Ankara. (ent.)

**Union of Soviet Socialist Republics.**

- \* Abstracts of the Works of the Zoological Institute of the Moscow State University, Moscow.
- \* Acta Universitatis Asiae Mediae, Tashkent.
- Acta Universitatis Latviensis, Riga.
- \* Acta et Commentationes Universitatis Tartuensis, Tartu.
- \* Acta Universitatis Voronegiensis, Voronezh.
- Advances in Modern Biology, Moscow.
- \* Annales de l'Institut polytechnique du Don à Novotcherkassk, Novotcherkassk.
- \* Annales Societatis rebus naturae investigandis in Universitate Tartuensi constitutae, Tartu.
- \* Arbeiten der Limnologischen Station zu Kossino (bei Moskau), Moscow.
- \* Arbeiten des Naturforschervereins zu Riga, Riga.
- e\*Archives du Musée zoologique de l'Université de Moscou, Moscow.
- Biologicheskii Zhurnal', Moscow.
- Bulletin de l'Académie des sciences de l'U.R.S.S., Moscow.
- \* Bulletin de biologie et de médecine expérimentale de l'URSS, Moscow.
- e\*Bulletin de l'Institut des recherches biologique de Molotov, Molotov.
- \* Bulletin de l'Institut scientifique de biologie et de géographie, Irkutsk.
- \* Bulletin de l'Institut scientifique Lesshaft, Leningrad.

- e\*Bulletin de l'Institut de zoologie appliquée et de phytopathologie, Leningrad.
- e\*Bulletin du Musée de Géorgie, Tiflis.
- e\*Bulletin [Vestnik] of Plant Protection. Lenin Academy of Agricultural Sciences in U.S.S.R., Leningrad.
- e Bulletin de la Société des naturalistes de Moscou, Moscow.
- \* Bulletin de l'Université de l'Asie centrale, Tashkent.
- e\*Byulleten' Instituta Zernovogo Khozyaistva Yugo-Vostoka SSSR, Saratov.
- e Doklady Akademii Nauk SSSR, Moscow.
- e\*Folia zoologica et hydrobiologica, Riga.
- \* Gamta, Kaunas.
- e\*Izvestiya Kazakhskogo Filiala Akademii Nauk. Seriya Zoologicheskaya. Seriya Parazitologicheskaya, Alma-Ata.
- e\*Izvestiya Uzbekistanskogo Filiala Akademii Nauk SSSR, Tashkent.
- Journal of General Biology, Moscow & Leningrad.
- o Journal of Physiology of USSR, Leningrad.
- \* Korrespondenzblatt des Naturforschervereins zu Riga, Riga.
- e\*Magasin de parasitologie, Leningrad.
- e\*Medical Parasitology and Parasitic Diseases, Moscow.
- \* Mémoires de la Faculté des sciences de l'Université Vyntas le Grand, Kaunas.
- e\*Nauchnye Zapiski po Sakharnoi Promyshlennosti, Kiev.
- \* Nouveaux mémoires de la Société des naturalistes de Moscou, Moscow.
- e\*Proceedings of the Lenin Academy of Agricultural Sciences of USSR, Moscow.
- e Revue d'entomologie de l'U.R.S.S., Leningrad.
- e\*Sotzialisticheskoe Zernovoe Khozyaistvo, Saratov.
- e\*Summary of the Scientific Research Work of the Institute of Plant Protection, Lenin Academy of Agricultural Sciences in USSR, Leningrad.
- e Tableaux analytiques de la Faune de l'U.R.S.S., Leningrad. (ent.)
- \* Travaux de l'Institut des recherches biologiques et de la Station biologique à l'Université de Perm, Perm (Molotov).
- e\*Travaux de l'Institut de zoologie et biologie. (Académie des Sciences de l'Ukraine), Kiev.

**Union of Soviet Socialist Republics (contd.)**

- e Travaux de l'Institut zoologique de l'Académie des Sciences de l'U.R.S.S., Leningrad.
- e\*Travaux du Musée zoologique, Académie des Sciences de l'Ukraine, Kiev.
- e\*Travaux de la Société des naturalistes. Section de zoologie et de physiologie, Leningrad.
- \* Travaux de la Société des sciences et des lettres de Wilno (Cl. Sci. math. nat.), Wilno.
- e Travaux de la Station biologique du Caucase du Nord, Dzauzhikau.
- \* Travaux de la Station hydrobiologique du Dnièpre, Kiev.
- \* Travaux de la Station limnologique du Lac Baikal, Leningrad.
- \* Travaux de la Station des sciences naturelles à Karadagh, Moscow.
- \* Trudui Azerbaidzhanskogo Filiala. Akademiyi Nauk SSSR, Baku.
- Ucheniye Zapiski. Moskovskii Gosudarstvennii Universitet, Moscow.
- Vestnik. Académie des Sciences de l'URSS, Moscow.
- e\*Vestnik Mikrobiologii, Epidemiologii i Parazitologii, Saratov.
- e Veterinariya, Moscow.
- \* Visti Akademii Nauk URSR, Kiev.
- e\*Zoologicheskii Zhurnal, Moscow.

**United States of America.**

- \* Abstract of the Proceedings of the Linnaean Society of New York, New York, N.Y.
- Abstracts of Doctoral Dissertations. Ohio State University, Columbus, Ohio.
- e Agricultural Chemicals, Baltimore, Md.
- American Journal of Botany, Lancaster, Pa.
- e American Journal of Hygiene, Baltimore, Md.
- o American Journal of Medical Sciences, Philadelphia, Pa.
- o American Journal of Pathology, Ann Arbor, Mich.
- o American Journal of Physiology, Baltimore, Md.
- o American Journal of Public Health, New York, N.Y.
- American Journal of Science, New Haven, Conn.
- e American Journal of Tropical Medicine, Baltimore, Md.
- e American Journal of Veterinary Research, Chicago, Ill.
- American Midland Naturalist, Notre Dame, Ind.

American Museum Novitates, New York, N.Y.

- American Naturalist, New York, N.Y.
- o American Potato Journal, New Brunswick, N.J.
- Anatomical Record, Philadelphia, Pa.
- Annals of the Carnegie Museum, Pittsburgh, Pa.
- e Annals of the Entomological Society of America, Columbus, Ohio.
- Annals of the Missouri Botanical Garden, St. Louis, Mo.
- Annals of the New York Academy of Sciences, New York, N.Y.
- Aquarium, Philadelphia, Pa.
- e Bibliographical Bulletin. United States Department of Agriculture, Washington, D.C. (ent.)
- e Bibliography of Agriculture, Washington, D.C.
- e Biennial Report. Kansas Agricultural Experiment Station, Manhattan, Kans.
- e Biennial Report. Kansas State Horticultural Society, Topeka, Kans.
- Biennial Report of the Louisiana State Museum, Baton Rouge, La.
- e Bimonthly Bulletin. North Dakota Agricultural Experiment Station, Fargo, N. Dak.
- e Biological Bulletin. Marine Biological Laboratory, Lancaster, Pa.
- e Boletín de la Oficina sanitaria panamericana, Washington, D.C.
- Botanical Gazette, Chicago, Ill.
- Botanical Review, Lancaster, Pa.
- Brooklyn Botanic Garden Record, Brooklyn, N.Y.
- e Bulletin. Alabama Agricultural Experiment Station, Auburn, Ala. (ent.)
- Bulletin of the American Museum of Natural History, New York, N.Y.
- e Bulletin. Arizona Agricultural Experiment Station, Tucson, Ariz. (ent.)
- e Bulletin. Arkansas Agricultural Experiment Station, Fayetteville, Ark. (ent.)
- e Bulletin of the Brooklyn Entomological Society, Brooklyn, N.Y.
- Bulletin of the Buffalo Society of Natural Sciences, Buffalo, N.Y.
- e Bulletin. California Agricultural Experiment Station, Berkeley, Calif. (ent.)
- Bulletin of the Chicago Academy of Sciences, Chicago, Ill.
- e Bulletin. Colorado Agricultural Experiment Station, Fort Collins, Colo. (ent.)



**United States of America** (*contd.*)

- e Bulletin. Connecticut Agricultural Experiment Station, New Haven, Conn. (ent.)
- e Bulletin. State of Connecticut. State Geological and Natural History Survey, Hartford, Conn. (ent.)
- e Bulletin. Cornell University Agricultural Experiment Station, Ithaca, N.Y. (ent.)
- e Bulletin. Delaware Agricultural Experiment Station, Newark, Del. (ent.)
- e Bulletin of the Department of Agriculture, State of California, Sacramento, Calif.
- e Bulletin. Florida Agricultural Experiment Station, Gainesville, Fla. (ent.)
- Bulletin of the George Washington University, Washington, D.C.
- e Bulletin. Georgia [Agricultural] Experiment Station, Atlanta, Ga. (ent.)
- e Bulletin. Georgia Department of Entomology, Atlanta, Ga.
- e Bulletin. Idaho Agricultural Experiment Station, Moscow, Idaho. (ent.)
- e Bulletin. Illinois Agricultural Experiment Station, Urbana, Ill. (ent.)
- e Bulletin of the Illinois State Natural History Survey, Urbana, Ill.
- e Bulletin. Indiana Agricultural Experiment Station, Lafayette, Ind. (ent.)
- e Bulletin. Iowa Agricultural Experiment Station, Ames, Iowa. (ent.)
- e Bulletin. Kansas Agricultural Experiment Station, Manhattan, Kans. (ent.)
- e Bulletin. Kentucky Agricultural Experiment Station, Lexington, Ky. (ent.)
- e Bulletin. Louisiana Agricultural Experiment Station, Baton Rouge, La. (ent.)
- e Bulletin. Maine Agricultural Experiment Station, Orono, Me. (ent.)
- e Bulletin. Maryland Agricultural Experiment Station, College Park, Md. (ent.)
- e Bulletin. Massachusetts Agricultural Experiment Station, Amherst, Mass. (ent.)
- e Bulletin. Minnesota Agricultural Experiment Station, St. Paul, Minn. (ent.)
- e Bulletin. Mississippi Agricultural Experiment Station, State College, Miss. (ent.)
- e Bulletin. Missouri Agricultural Experiment Station, Columbia, Mo. (ent.)
- e Bulletin. Montana Agricultural Experiment Station, Bozeman, Mont. (ent.)
- Bulletin of the Museum of Comparative Zoology at Harvard College, Cambridge, Mass.
- Bulletin of the Museum of Northern Arizona, Flagstaff, Ariz.
- \* Bulletin of the National Research Council, Washington, D.C.
- e Bulletin. Nebraska Agricultural Experiment Station, Lincoln, Neb. (ent.)
- Bulletin. Nebraska State Museum, Lincoln, Neb.
- e Bulletin. Nevada Agricultural Experiment Station, Reno, Nev. (ent.)
- e Bulletin. New Hampshire Agricultural Experiment Station, Durham, N.H. (ent.)
- e Bulletin. New Jersey Agricultural Experiment Station, New Brunswick, N.J. (ent.)
- e Bulletin. New Mexico Agricultural Experiment Station, State College, N. Mex. (ent.)
- e Bulletin. New York State Agricultural Experiment Station, Geneva, N.Y. (ent.)
- e Bulletin of the New York State Museum of Natural History, Albany, N.Y. (ent.)
- Bulletin of the New York Zoological Society, New York, N.Y.
- e Bulletin. North Carolina Agricultural Experiment Station, West Raleigh, N.C. (ent.)
- e Bulletin. North Dakota Agricultural Experiment Station, Fargo, N. Dak. (ent.)
- e Bulletin. Ohio Agricultural Experiment Station, Wooster, Ohio. (ent.)
- e Bulletin of the Ohio Biological Survey, Columbus, Ohio.
- e Bulletin. Oklahoma Agricultural Station, Stillwater, Okla. (ent.)
- e Bulletin. Oregon Agricultural Experiment Station, Corvallis, Ore. (ent.)
- e Bulletin. Pennsylvania Agricultural Experiment Station, State College, Pa. (ent.)
- e (General) Bulletin. Pennsylvania Department of Agriculture, Harrisburg, Pa. (ent.)
- e Bulletin. South Carolina Agricultural Experiment Station, Clemson College, S.C. (ent.)
- e Bulletin. South Dakota Agricultural Experiment Station, Brookings, S. Dak. (ent.)

**United States of America** (*contd.*)

- Bulletin of the Southern California Academy of Sciences, Los Angeles, Calif.
- e Bulletin. Tennessee Agricultural Experiment Station, Knoxville, Tenn. (ent.)
- e Bulletin. Texas Agricultural Experiment Station, College Station, Tex. (ent.)
- e Bulletin of the United States Army Medical Department, Carlisle, Pa.
- e Bulletin. United States National Museum. Smithsonian Institution, Washington, D.C. (ent.)
- Bulletin. University of Michigan School of Forestry and Conservation, Ann Arbor, Mich.
- Bulletin of the University of Utah (Biological Series), Salt Lake City, Utah.
- e Bulletin. Utah Agricultural Experiment Station, Logan, Utah. (ent.)
- e Bulletin. Virginia Agricultural Experiment Station, Blacksburg, Va. (ent.)
- e Bulletin. Virginia Truck Experiment Station, Norfolk, Va. (ent.)
- Bulletin of the Wagner Free Institute of Science, Philadelphia, Pa.
- Bulletin. Washington State Agricultural Experiment Station, Pullman, Wash. (ent.)
- Bulletin of the West Virginia Academy of Science, Morgantown, W. Va.
- e Bulletin. West Virginia Department of Agriculture, Charleston, W. Va. (ent.)
- e Bulletin. West Virginia University Agricultural Experiment Station, Morgantown, W. Va. (ent.)
- e Bulletin. Wisconsin Agricultural Experiment Station, Madison, Wis. (ent.)
- e Bulletin. Wyoming Agricultural Experiment Station, Laramie, Wyo. (ent.)
- Bulletin of the Zoological Society of San Diego, San Diego, Calif.
- Butler University Botanical Studies, Indianapolis, Ind.
- e California Citrograph, Los Angeles, Calif.
- Charleston Museum Leaflets, Charleston, S.C.
- Chicago Naturalist, Chicago, Ill.
- e Circular. Alabama Agricultural Experiment Station, Auburn, Ala. (ent.)
- e Circular. California Agricultural Experiment Station, Berkeley, Calif. (ent.)
- e Circular. Connecticut Agricultural Experiment Station, New Haven, Conn. (ent.)
- e Circular. Idaho Agricultural Experiment Station, Moscow, Idaho. (ent.)
- e Circular. Illinois Agricultural Experiment Station, Urbana, Ill. (ent.)
- e Circular. Illinois State Natural History Survey, Urbana, Ill. (ent.)
- e Circular. Kansas Agricultural Experiment Station, Manhattan, Kans. (ent.)
- e Circular. Kentucky Agricultural Experiment Station, Lexington, Ky. (ent.)
- e Circular. Mississippi Agricultural Experiment Station, State College, Miss. (ent.)
- e Circular. Missouri Agricultural Experiment Station, Columbia, Mo. (ent.)
- e Circular. Montana Agricultural Experiment Station, Bozeman, Mont. (ent.)
- e Circular. Nebraska Agricultural Experiment Station, Lincoln, Neb. (ent.)
- e Circular. New Jersey Agricultural Experiment Station, New Brunswick, N.J. (ent.)
- e Circular. New Jersey Department of Agriculture, Trenton, N.J. (ent.)
- e Circular. New York State Agricultural Experiment Station, Geneva, N.Y. (ent.)
- Circular. New York State Museum, Albany, N.Y.
- e Circular. Oklahoma Agricultural Experiment Station, Stillwater, Okla. (ent.)
- e Circular. Oregon Agricultural Experiment Station, Corvallis, Ore. (ent.)
- e Circular. Pennsylvania Agricultural Experiment Station, State College, Pa. (ent.)
- e Circular. South Dakota Agricultural Experiment Station, Brookings, S. Dak. (ent.)
- e Circular. Tennessee Agricultural Experiment Station, Knoxville, Tenn. (ent.)
- e Circular. Texas Agricultural Experiment Station, College Station, Tex. (ent.)
- e Circular. United States Department of Agriculture, Washington, D.C. (ent.)
- \* Circular. University of Michigan School of Forestry and Conservation, Ann Arbor, Mich.
- e Circular. Utah Agricultural Experiment Station, Logan, Utah. (ent.)



**United States of America** (*contd.*)

- \* Contributions from the Biological Laboratories in Princeton University, Princeton, N.J.
- \* Contributions from the Botanical Laboratory, Univ. of Pennsylvania, Philadelphia, Pa.
- e Contributions from Boyce Thompson Institute, Menasha, Wis.  
Contributions to Embryology. (Publications of the Carnegie Institution), Washington, D.C.
- e Contributions in Zoology and Entomology, Ohio State University, Columbus, Ohio. (ent.)
- o Cornell Veterinarian, Ithaca, N.Y.
- e Current List of Medical Literature, Washington, D.C.  
Ecological Monographs, Durham, N.C.  
Ecology, Brooklyn, N.Y.
- e Entomologica Americana, Lancaster, Pa.
- e Entomological News, Philadelphia, Pa.  
Evolution, Chicago, Ill.
- \* Explorations and Field Work of the Smithsonian Institution, Washington, D.C.
- e Farm and Home Research, Wooster, Ohio.
- e Farmers' Bulletin. United States Department of Agriculture, Washington, D.C. (ent.)  
Fauna, Philadelphia, Pa.
- o Federation Proceedings, Baltimore, Md.  
Field and Laboratory. Contributions from the Science Departments of Southern Methodist University, Dallas, Tex.  
Fieldiana. Zoology, Chicago, Ill.
- e Florida Entomologist, Gainesville, Fla.  
Frontiers, Philadelphia, Pa.  
Genetics, Menasha, Wis.  
Geographical Review, New York, N.Y.  
Great Basin Naturalist, Provo, Utah.  
Allan Hancock Foundation Publications, Los Angeles, Calif.
- e Hilgardia. A Journal of Agricultural Science, Berkeley, Calif. (ent.)  
Hobbies, Buffalo, N.Y.
- e Illinois Biological Monographs, Urbana, Ill.  
Indiana University Publications, Science Series, Bloomington, Ind.  
Iowa State College Journal of Science, Ames, Iowa.
- e Journal of Agricultural Research, Washington, D.C.  
Journal of the Alabama Academy of Science, Birmingham, Ala.
- o Journal of the American Medical Association, Chicago, Ill.
- o Journal of the American Society of Agronomy, Geneva, N.Y.
- e Journal of the American Veterinary Medical Association, Chicago, Ill.
- o Journal of Biological Chemistry, Baltimore, Md.
- e Journal of Cellular and Comparative Physiology, Philadelphia, Pa.
- \* Journal of the Cincinnati Society of Natural History, Cincinnati, Ohio.
- e Journal of Economic Entomology, Menasha, Wis.  
Journal of the Elisha Mitchell Scientific Society, Chapel Hill, N.C.
- e Journal of Entomology and Zoology, Pomona College, Claremont, Calif.
- o Journal of Experimental Medicine, Baltimore, Md.  
Journal of Experimental Zoology, Philadelphia, Pa.
- e Journal of Forestry, Washington, D.C.
- o Journal of General Physiology, Baltimore, Md.
- o Journal of Heredity, Baltimore, Md.
- e Journal of the Kansas Entomological Society, Manhattan, Kans.  
Journal of Mammalogy, Baltimore, Md.
- Journal of Morphology (and Physiology), Philadelphia, Pa.
- e Journal of the National Malaria Society, Tallahassee, Fla.  
Journal of the New York Entomological Society, Lancaster, Pa.
- e Journal of Parasitology, Lancaster, Pa.
- Journal of the Scientific Laboratories of Denison University, Granville, Ohio.
- Journal of the Tennessee Academy of Science, Nashville, Tenn.
- Journal of the Washington Academy of Sciences, Menasha, Wis.
- e Kansas University Science Bulletin, Lawrence, Kans.
- e Leaflet. Alabama Agricultural Experiment Station, Auburn, Ala. (ent.)
- \* Leaflet. Mengel Natural History Society, Reading, Pa.
- e Leaflet. United States Department of Agriculture, Washington, D.C. (ent.)  
Lloydia, Menasha, Wis.  
Madroño, Lancaster, Pa.  
Masterkey (Southwest Museum), Los Angeles, Calif.  
Memoirs of the American Academy of Arts and Sciences, Boston, Mass.  
Memoirs of the American Entomological Society, Philadelphia, Pa.

**United States of America** (*contd.*)

- Memoirs of the Boston Society of Natural History, Boston, Mass.
- e Memoirs. Cornell University Agricultural Experiment Station, Ithaca, N.Y. (ent.)
- Memoirs of the Museum of Comparative Zoology of Harvard College, Cambridge, Mass.
- Memoirs of the Southern California Academy of Sciences, Los Angeles, Calif.
- Memoirs of the University of California, Berkeley, Calif.
- e Microentomology, Stanford University, Calif.
- e Miscellaneous Publications. Maine Agricultural Experiment Station, Orono, Me. (ent.)
- e Miscellaneous Publications of the Museum of Zoology, Univ. of Michigan, Ann Arbor. (ent.)
- e Miscellaneous Publications. United States Department of Agriculture, Washington, D.C. (ent.)
- Monographs of the Academy of Natural Sciences of Philadelphia, Philadelphia, Pa.
- e Mosquito News, New Brunswick, N.J.
- Museum Leaflet. Santa Barbara Museum of Natural History, Santa Barbara, Calif.
- National Geographic Magazine, Washington, D.C.
- e National Institute of Health Bulletin, United States Public Health Service, Washington, D.C. (ent.)
- Natural History. Amer. Museum of Nat. History, New York, N.Y.
- Natural History Miscellanea, Chicago, Ill.
- o Naval Medical Bulletin, Washington, D.C.
- New York Microscopical Society Bulletin, New York, N.Y.
- Northwest Science, Cheney, Wash.
- Notulae naturae, Philadelphia, Pa.
- \* Occasional Papers of the California Academy of Sciences, San Francisco, Calif.
- Occasional Papers. Museum of Zoology, Louisiana State University, Baton Rouge, La.
- e Occasional Papers of the Museum of Zoology, University of Michigan, Ann Arbor, Mich.
- Occasional Papers of the San Diego Society of Natural History, San Diego County, Calif.
- \* Occasional Papers. Santa Barbara Museum of Natural History, Santa Barbara, Calif.
- Occasional Papers. University of Minnesota Zoological Museum, Minneapolis, Minn.
- e Ohio Journal of Science, Columbus, Ohio.
- e Pan-Pacific Entomologist, San Francisco, Calif.
- e Papers of the Michigan Academy of Science, Arts and Letters (Part II. Zoology), Ann Arbor, Mich.
- Papers from the Tortugas Laboratory (Department of Marine Biology) of the Carnegie Institution of Washington, Washington, D.C.
- e Pests and their Control, Kansas City, Mo.
- e Physiological Zoölogy, Chicago, Ill.
- Phytopathology. American Phytopathological Society, Lancaster, Pa.
- e Picture Sheet. Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D.C.
- Plateau, Flagstaff, Ariz.
- e Popular Bulletin. Washington State Agricultural Experiment Station, Pullman, Wash. (ent.)
- e Press Bulletin. Florida Agricultural Experiment Station, Gainesville, Fla. (ent.)
- Proceedings of the Academy of Natural Sciences of Philadelphia, Philadelphia, Pa.
- Proceedings of the American Academy of Arts and Sciences, Boston, Mass.
- \* Proceedings of the American Association for the Advancement of Science, Philadelphia, Pa.
- \* Proceedings of the American Philosophical Society, Philadelphia, Pa.
- \* Proceedings of the Biological Society of Washington, Washington, D.C.
- Proceedings of the California Academy of Sciences, San Francisco, Calif.
- e Proceedings of the Entomological Society of Washington, Washington, D.C.
- Proceedings of the Helminthological Society of Washington, Washington, D.C.
- Proceedings of the Indiana Academy of Science, Indianapolis, Ind.
- Proceedings of the Iowa Academy of Science, Des Moines, Iowa.
- Proceedings of the Linnaean Society of New York, New York, N.Y.
- Proceedings of the Louisiana Academy of Sciences, Baton Rouge, La.
- Proceedings of the Missouri Academy of Science, Columbia, Mo.
- Proceedings of the National Academy of Sciences, Washington, D.C.



**United States of America** (*contd.*)

- e Proceedings of the National Shade Tree Conferences, Columbus, Ohio.
- e Proceedings. New Jersey Mosquito Extermination Association, New Brunswick, N.J.
- e Proceedings of the New York State Horticultural Society, Rochester, N.Y.
- e Proceedings. Ohio State Horticultural Society, Columbus, Ohio.
- Proceedings of the Pennsylvania Academy of Science, Harrisburg, Pa.
- Proceedings of the Portland Society of Natural History, Portland, Me.
- Proceedings of the Rochester Academy of Science, Rochester, N.Y.
- Proceedings of the Society for Experimental Biology and Medicine, New York, N.Y.
- Proceedings of the South Dakota Academy of Science, Vermillion, S. Dak.
- Proceedings and Transactions of the Texas Academy of Science, Houston, Tex.
- e Proceedings of the United States National Museum, Washington, D.C. (ent.)
- \* Proceedings of the Utah Academy of Sciences, Salt Lake City, Utah.
- e Psyche, a Journal of Entomology, Cambridge, Mass.
- e Public Health Bulletin, Washington, D.C. (ent.)
- e Public Health Reports, Washington, D.C.
- e Publications. American Association for the Advancement of Science, Washington, D.C. (ent.)
- \* Publications of the American Association of Museums, Washington, D.C.
- \* Publications. Carnegie Institution of Washington, Washington, D.C.
- Publications of the Carnegie Museum, Pittsburgh, Pa.
- e Publications. Colorado Agricultural Experiment Station, Fort Collins, Colo.
- Publications. University of Wyoming, Laramie, Wyo.
- \* Publications of the Wagner Free Institute of Science, Philadelphia, Pa.
- e Quarterly Bulletin. Michigan Agricultural Experiment Station, East Lansing, Mich.
- Quarterly Journal of the Florida Academy of Sciences, Tallahassee, Fla.
- Quarterly Review of Biology, Baltimore, Md.
- e Report of the Alabama Agricultural Experiment Station, Auburn, Ala.
- Report of the American Museum of Natural History, New York, N.Y.
- e Report. Arizona Agricultural Experiment Station, Tucson, Ariz.
- e\* Report. California Agricultural Experiment Station, Berkeley, Calif.
- e Report of the Chief of the Bureau of Animal Industry, Agricultural Research Administration, United States Department of Agriculture, Washington, D.C.
- e Report of the Chief of the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, United States Department of Agriculture, Washington, D.C.
- e Report. Colorado Agricultural Experiment Station, Fort Collins, Colo.
- e Report. Cornell University Agricultural Experiment Station, Ithaca, N.Y.
- e Report. Department of Agriculture and Conservation, Rhode Island, Providence, R.I.
- e Report. Florida Agricultural Experiment Station, Gainesville, Fla.
- e\* Report of the Illinois Agricultural Experiment Station, Urbana, Ill.
- e Report. International Health Division, Rockefeller Foundation, New York, N.Y.
- \* Report of the Laboratory and Museum of Comparative Pathology of the Zoological Society of Philadelphia, Philadelphia, Pa.
- Report of the Museum of Comparative Zoology at Harvard University, Cambridge, Mass.
- e Report of the New Mexico Agricultural Experiment Station, State College, N. Mex.
- e Report of the New York State Agricultural Experiment Station, Geneva, N.Y.
- Report of the New York Zoological Society, New York, N.Y.
- e Report. Oklahoma Agricultural Experiment Station, Stillwater, Okla.
- e Report of the South Carolina Agricultural Experiment Station, Clemson, S.C.
- e Report. Texas Agricultural Experiment Station, College Station, Tex.
- Report of the United States National Museum, Smithsonian Institution, Washington, D.C.

**United States of America** (*contd.*)

- e Research Bulletin. Iowa Agricultural Experiment Station, Ames, Iowa. (ent.)
- e Research Bulletin. Missouri Agricultural Experiment Station, Columbia, Mo. (ent.)
- e Research Bulletin. Nebraska Agricultural Experiment Station, Lincoln, Neb. (ent.)
- e Research Bulletin. Wisconsin Agricultural Experiment Station, Madison, Wis. (ent.)
- Research Studies. State College of Washington, Pullman, Wash.
- e Review. Rockefeller Foundation, New York, N.Y.
- e Review of U.S. Patents relating to Pest Control, Washington, D.C.
- Rhodora. Journal of the New England Botanical Club, Boston, Mass.
- Science, Lancaster, Pa.
- Science Bulletin. Museum of the Brooklyn Institute of Arts and Sciences, New York, N.Y.
- Science Bulletin. Ohio State Museum, Columbus, Ohio.
- Scientific Publications. Cleveland Museum of Natural History, Cleveland, Ohio.
- e Scientific Publications of the Reading Public Museum and Art Gallery, Reading, Pa.
- Scientific Survey of Porto Rico and Virgin Islands, New York, N.Y.
- e Service and Regulatory Announcements. Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D.C.
- e Smithsonian Miscellaneous Collections, Washington, D.C. (ent.)
- e Soap and sanitary Chemicals, New York, N.Y.
- o Southern Medical Journal, Birmingham, Ala.
- e Special Bulletin. Michigan Agricultural Experiment Station, East Lansing, Mich. (ent.)
- \* Stanford University Publications. University Series. Biological Sciences. Palo Alto, Calif.
- Studies in Natural History, Iowa University, Iowa City, Iowa.
- e Technical Bulletin. Arizona Agricultural Experiment Station, Tucson, Ariz. (ent.)
- e Technical Bulletin. Colorado Agricultural Experiment Station, Fort Collins, Colo. (ent.)
- e Technical Bulletin. Kansas Agricultural Experiment Station, Manhattan, Kans. (ent.)
- e Technical Bulletin. Michigan Agricultural Experiment Station, East Lansing, Mich. (ent.)
- e Technical Bulletin. Minnesota Agricultural Experiment Station, St. Paul, Minn. (ent.)
- e Technical Bulletin. Mississippi Agricultural Experiment Station, Agricultural College, Miss. (ent.)
- e Technical Bulletin. New Hampshire Agricultural Experiment Station, Durham, N.H. (ent.)
- e Technical Bulletin. New York State Agricultural Experiment Station, Geneva, N.Y. (ent.)
- e Technical Bulletin. Oklahoma Agricultural Experiment Station, Stillwater, Okla. (ent.)
- e Technical Bulletin. South Dakota Agricultural Experiment Station, Brookings, S. Dak. (ent.)
- e Technical Bulletin. United States Department of Agriculture, Washington, D.C. (ent.)
- e Technical Bulletin. Virginia Agricultural Experimental Station, Blacksburg, Va. (ent.)
- o Texas Reports on Biology and Medicine, Galveston, Tex.
- Transactions of the Academy of Science of St. Louis, St. Louis, Mo.
- e Transactions of the American Entomological Society, Philadelphia, Pa.
- Transactions of the American Microscopical Society, Menasha, Wis.
- Transactions of the American Philosophical Society, Philadelphia, Pa.
- Transactions of the Connecticut Academy of Arts and Sciences, New Haven, Conn.
- Transactions of the Illinois State Academy of Science, Springfield, Ill.
- e Transactions of the Illinois State Horticultural Society, Quincy, Ill.
- Transactions of the Kansas Academy of Science, Manhattan, Kans.
- e Transactions of the Peninsula Horticultural Society, Dover, Del.
- Transactions of the San Diego Society of Natural History, San Diego, Calif.
- Transactions of the Wisconsin Academy of Sciences, Arts and Letters, Madison, Wis.
- o Tropical Medicine News, New Orleans, La.
- University of Arizona Bulletin. Biological Series, Tucson, Ariz.
- e University of California Publications in Entomology, Berkeley, Calif.
- e University of California Publications in Zoology, Berkeley, Calif.



**United States of America** (*contd.*)

- \* University of Chicago Science Series, Chicago, Ill.
- University of Colorado Studies, Boulder, Colo.
- \* University of Florida Publication. Biological Science Series. Gainesville, Fla.
- University of Missouri Studies, Columbia, Mo.
- University of Nebraska Studies, Lincoln, Neb.
- University of Texas Publication, Austin, Tex.
- University of Washington Publications in Biology, Seattle, Wash.
- \* Virginia Journal of Science, Lexington, Va.
- Wasmann Collector, San Francisco, Calif.
- Yearbook. Carnegie Institution of Washington, Washington, D.C.
- Zoologica. Scientific Contributions of the New York Zoological Society, New York, N.Y.

**United States Territories and Island possessions.**

- Bulletin of the Bernice Pauahi Bishop Museum, Honolulu.
- e Bulletin. Hawaii Agricultural Experiment Station, Honolulu. (ent.)
- e Bulletin. Hawaiian Sugar Planters' Association. Experiment Station (Entomological Series), Honolulu.
- e Bulletin. Porto Rico [Federal] Agricultural Experiment Station, Mayaguez, Washington, D.C. (ent.)
- e Bulletin. Porto Rico Agricultural Experiment Station, University of Porto Rico, Río Piedras. (ent.)
- e Caribbean Forester, Río Piedras.
- e Circular. Hawaii Agricultural Experiment Station, Honolulu. (ent.)
- e Circular. Porto Rico [Federal] Agricultural Experiment Station, Mayaguez. (ent.)
- e Circular. Porto Rico Agricultural Experiment Station, University of Porto Rico, Río Piedras. (ent.)
- o Hawaii Medical Journal, Honolulu.
- e Hawaiian Planters' Record, Honolulu.
- e Journal of Agriculture of the University of Puerto Rico, Río Piedras.
- \* Memoirs of the Bernice Pauahi Bishop Museum of Polyresian Ethnology and Natural History, Honolulu.

Occasional Papers of the Bernice Pauahi Bishop Museum of Polyresian Ethnology and Natural History, Honolulu.

- Proceedings. Hawaiian Academy of Science, Honolulu.
- e Proceedings of the Hawaiian Entomological Society, Honolulu.
- e Puerto Rico Journal of Public Health and Tropical Medicine, Brattleboro', Vt.
- e Report. Agricultural Experiment Station, University of Porto Rico, Río Piedras.
- e Report of the Experiment Station Committee, Hawaiian Sugar Planters' Association, Honolulu.
- e Report of the Hawaii Agricultural Experiment Station, Honolulu.
- e Report of the Health Department of the Panama Canal, Balboa Heights, Canal Zone.
- e Report. Porto Rico [Federal] Agricultural Experiment Station, Mayaguez, Washington, D.C.
- e Research Bulletin. Agricultural Experiment Station, University of Porto Rico, Río Piedras.
- Special Publications. Bernice Pauahi Bishop Museum, Honolulu.
- e Technical Bulletin. Hawaii Agricultural Experiment Station, Honolulu. (ent.)
- e Technical Papers. Agricultural Experiment Station, University of Porto Rico, Río Piedras. (ent.)

**Uruguay.**

- \* Anales del Museo de historia natural de Montevideo, Montevideo.
- Archivos de la Sociedad de biología de Montevideo, Montevideo.
- Boletín de la Sociedad amigos de las ciencias naturales "Kraglievich-Fontana", Nueva Palmira.

**Venezuela.**

- e Boletín de entomología venezolana, Caracas.
- Boletín del Laboratorio de la clínica "Luis Razetti", Caracas.
- e Boletín de la Sociedad venezolana de ciencias naturales, Caracas.
- Memorias de la Sociedad de ciencias naturales La Salle, Caracas.
- e Revista de medicina veterinaria y parasitología, Caracas.

**Venezuela** (*contd.*).

- e Revista de sanidad y asistencia social, Caracas.
- e Tijeretas sobre malaria, Maracay.

**Yugoslavia.**

- \* Acta Societatis entomologicae Jugoslavicae, Belgrade.
- e Arhiv za Poljoprivredne Nauke i Tehniku, Belgrade.
- \* Bulletin de la Société scientifique de Skoplje, Uskub.
- \* Glas srpske Kraljevske Akademije, Belgrade.
- \* Glasnik Hrvatskoga prirodoslovnoga Društva, Zagreb.
- e\* Glasnik Zentralnog Khigijenskog Zavoda, Belgrade.
- \* Prirodoslovna Istraživanja Kraljevine Jugoslavije, Zagreb.
- \* Prirodoslovne Razprave, Ljubljana.

**INTERNATIONAL.**

- e Bulletin of the World Health Organization, Geneva and New York.
- e Chronicle of the World Health Organization, Geneva and New York.
- e Food and Agriculture. The FAO European Bulletin, Rome.
- e Revista do Serviço especial de saúde pública, Rio de Janeiro.
- e\* Transactions of the Far-Eastern Association of Tropical Medicine.
- e International Congress of Entomology. Proceedings.
- International Congress of Zoology. Reports.
- e International Locust Conference. Proceedings.
- e Pacific Science Congress. Proceedings.



# INDEX OF AUTHORS.

A reference in heavy type indicates that a paper by the author has been noticed.

Abbas, Manzoor, **31**.  
 Abbott, C. E., **58**.  
 Abbott, W. S., **279**.  
 Abdul Wahid Khan, **186**.  
 Aburto V., H., **387**.  
 Adams, J. A., **261, 337**.  
 Adams, J. B., **268**.  
 Afzal, Mohammad, **31**.  
 Afzal Husain, M., **186**.  
 Agacino, E. Morales, **153**.  
 Aguilar, J. d', **423**.  
 Ahlgren, G. H., **363**.  
 Alexander, J., **389**.  
 Alfaro, A., **148, 150, 153**.  
 Alibert, H., **89, 136, 305**.  
 Allman, S. L., **216**.  
 Alvarez Aparicio, J., **38**.  
 Amar Nath Sapra, **31, 68**.  
 Anderson, R. F., **48**.  
 Anscombe, F. J., **303**.  
 Anson, R. R., **340**.  
 Aparicio, J. Alvarez, **38**.  
 Araujo e Silva, A. G. d', **77**.  
 Armitage, H. M., **324**.  
 Armstrong, T., **182, 336**.  
 Arnoux, J., **423**.  
 Arruda, S. C., **167**.  
 Ashby, D. G., **24, 207, 213**.  
 Aubert, P., **145**.  
 Azam, J., **137**.  
 Azevedo, A. Rosa de, **156**.

Baeta Neves, C. M., **333**.  
 Bagal, S. R., **4**.  
 Báguena Corella, L., **36, 37**.  
 Bailey, J. S., **181**.  
 Baker, A. D., **12**.  
 Baker, W. L., **405**.  
 Baker, W. W., **300**.  
 Balachowsky, A., **194, 224**.  
 Balch, R. E., **8**.  
 Bald, J. G., **156**.  
 Ballinger, W. R., **136, 412**.  
 Ballou, C. H., **18**.  
 Balock, J. W., **117**.  
 Baptista, J. E., **155**.  
 Barber, H. S., **171**.

Bare, O. S., **362**.  
 Barnes, S., **292**.  
 Bartlett, L. M., **337**.  
 Basinger, A. J., **323**.  
 Baudyš, E., **100**.  
 Bauer, E., **72**.  
 Bawden, F. C., **206**.  
 Beard, R. L., **361, 389**.  
 Bebbington, A. G., **341**.  
 Becker, G., **332, 350**.  
 Becker, W. B., **406**.  
 Beffa, G. Della, **288**.  
 Bégué, H., **291**.  
 Beï-Bienko, G. Ya., **40, 41**.  
 Bellod, M., **149, 150**.  
 Bender, E., **71**.  
 Benitez Morera, A., **155**.  
 Benlloch, M., **148**.  
 Bennett, C. W., **426**.  
 Bennett, S. H., **94**.  
 Beran, F., **380, 424, 425**.  
 Bergamin, J., **105**.  
 Berger, B. G., **49**.  
 Bienko, G. Ya. Beï-, **40, 41**.  
 Birch, L. C., **136, 157, 168, 191, 192**.  
 Bird, F. T., **9**.  
 Blanchard, E. E., **77**.  
 Blatný, C., **100, 102, 103, 104**.  
 Blauvelt, W. E., **180**.  
 Blunck, H., **351**.  
 Bobb, M. L., **248**.  
 Bogdanov-Kat'kov, N. N., **40**.  
 Boisshot, **194**.  
 Bolduirev, V. F., **346**.  
 Bolton, J. L., **185**.  
 Bonnemaïson, L., **311, 421**.  
 Borden, A. D., **111, 112, 113, 114**.  
 Borges, M. de L. Vieira, **333**.  
 Börner, C., **39**.  
 Bosq, J. M., **19, 413**.  
 Bouchet, R., **313**.  
 Bouffil, F., **305**.  
 Bourgin, G. Viennot-, **194**.  
 Bourne, A. I., **181**.  
 Bovey, P., **69, 70, 193, 224**.  
 Bovien, P., **348, 380**.  
 Box, H. E., **88**.  
 Brammanis, L., **350**.

- Brandão filho, J. Soares, 107.  
 Brandes, G. A., 229.  
 Brann jr., J. L., 198.  
 Breakey, E. P., 130, 298, 299.  
 Bridwell, J. C., 8.  
 Brindley, T. A., 230, 232.  
 Bromley, S. W., 230.  
 Bronson, T. E., 253.  
 Brown, W. J., 412.  
 Broyer, T. C., 115.  
 Bruner, S. C., 17.  
 Brunson, M. H., 402.  
 Bryden, J. D., 369.  
 Buchanan, L. L., 8.  
 Buckell, E. R., 59.  
 Burgess, P. S., 167.  
 Burkhardt, G., 255.  
 Busvine, J. R., 203, 292.  
 Buxton, D. A. J., 89.  
  
 Cairaschi, E. A., 312.  
 Caldwell, N. E. H., 415.  
 Calkins, L. A., 410.  
 Callan, E. McC., 130, 164.  
 Cambournac, F. J. C., 353.  
 Cameron, A. E., 4, 188.  
 Caminha filho, A., 85.  
 Campbell, T. G., 219.  
 Cañizo, J. del, 148, 152.  
 Carlson, E. C., 299.  
 Carlson, F. W., 131, 406, 407.  
 Carruth, L. A., 337.  
 Carvalho, J. C., 108.  
 Carvalho, J. H. de, 170.  
 Cashmore, A. B., 219.  
 Castro, A. Ruiz, 149, 151, 270.  
 Chamberlin, J. C., 232.  
 Chandler, S. C., 80, 84.  
 Chapman, A. J., 52, 54.  
 Chesnokov, P. G., 41.  
 Chiesa Molinari, O., 170.  
 China, W. E., 216.  
 Chisholm, R. D., 128, 402.  
 Chugunin, Ya. V., 41, 313.  
 Clancy, D. W., 396.  
 Clausen, R., 383.  
 Clemente, F. Gomez-, 150.  
 Cohen, M., 211, 223.  
 Collins, D. L., 259, 260.  
 Coon, B. F., 53.  
 Corby, H. D. L., 216.  
 Corella, L. Báguena, 36, 37.  
 Cory, E. N., 119, 260.  
 Costa Lima, A. da, 77.  
 Cottam, C., 177, 376.  
  
 Cottier, W., 13, 14.  
 Cotton, R. T., 410.  
 Couturier, A., 138, 269, 422.  
 Cowland, J. W., 292.  
 Creighton, J. T., 125.  
 Cristol, S. J., 428.  
 Crowley, D. J., 298.  
 Cutright, C. R., 267.  
  
 da Costa Lima, A., 77.  
 d'Aguilar, J., 423.  
 d'Araujo e Silva, A. G., 77.  
 Davies, W. M., 382.  
 Davis, J. J., 178.  
 Dean, G. A., 34, 338.  
 Dean, R. W., 131, 199.  
 de Azevedo, A. Rosa, 156.  
 de Carvalho, J. H., 170.  
 de Figueiredo jr., E. R., 105.  
 de Garay, A. Delgado, 182, 388.  
 de la Rosa, E., 334.  
 del Cañizo, J., 148, 152.  
 Delgado de Garay, A., 182, 388.  
 Delisle, R., 29.  
 Della Beffa, G., 288.  
 Dennell, R., 203.  
 De Santis, L., 333.  
 de Souza, H. Dias, 169.  
 Dethier, V. G., 45.  
 de Toledo, A. A., 107.  
 DeVaux, L. A., 356.  
 Dews, S. C., 399.  
 Dias de Souza, H., 169.  
 Dicker, G. H. L., 211.  
 Dickson, R. C., 49, 54.  
 Ditman, L. P., 255, 258, 405.  
 d'Oliveira, M. de L., 333.  
 Domínguez García-Tejero, F., 168.  
 Dommergues, P., 423.  
 Doncaster, J. P., 205, 206.  
 Doolittle, S. P., 376.  
 Doucette, C. F., 299, 300.  
 Douglass, J. R., 231.  
 Driggers, B. F., 251.  
 Ducker, H. C., 342.  
 Dumbleton, L. J., 62.  
 Durán M., L., 7, 8, 21.  
 Dustan, G. G., 182.  
  
 Ebeling, W., 49, 53, 123, 353.  
 Efimov, A. L., 42.  
 Emery, W. T., 425.  
 Epple, H. Pairoa, 7, 19.  
 Essig, E. O., 325.  
 Ewing, K. P., 47, 175, 397.



- Faes, H., 145, 224.  
 Fahey, J. E., 81, 318.  
 Fales, J. H., 136.  
 Fal'kenshtein, B. Yu., 40.  
 Farstad, C. W., 10, 338, 364.  
 Fauré, G. Olalquiaga, 8, 354, 355.  
 Fawcett, G. L., 65.  
 Featherston, R. V., 13.  
 Fedotov, D. M., 345.  
 Fenjves, P., 381.  
 Fennah, R. G., 92.  
 Ferla, A. La, 272, 284.  
 Ferreira Lima, A. D., 170.  
 Ferrer Mendiola, E., 334.  
 Ferrière, C., 216, 226.  
 Ferris, G. F., 285, 323.  
 Feytaud, J., 195, 377.  
 Fielding, W. L., 339.  
 Fife, L. C., 52, 54.  
 Figueiredo jr., E. R. de, 105.  
 Filmer, R. S., 394.  
 Finney, D. J., 5, 303.  
 Finney, G. L., 174, 392.  
 Fischer, G. W., 297.  
 Fischer, H., 233.  
 Fisher, C. K., 128.  
 Fisher, W. S., 232.  
 Fisk, F. W., 173.  
 Flanders, S. E., 126, 323.  
 Fleck, E. E., 126, 413.  
 Fluno, H. J., 85.  
 Frankenfeld, J. C., 410.  
 Franssen, C. J. H., 39.  
 Franz, J., 72.  
 Frazier, N. W., 111, 130.  
 Freeborn, S. B., 115.  
 Freeman, J. A., 132.  
 Freitag, J. H., 171, 172.  
 Frèzal, P., 196.  
 Friederichs, K., 73.  
 Friend, A. H., 6, 35, 217.  
 Friend, R. B., 356.  
 Frost, S. W., 57, 409.  
 Fulton, B. B., 393.  
 Fulton, H. G., 43.  
 Fulton, R. A., 227.  
 Gadd, C. H., 2.  
 Gahan, C. J., 305.  
 Gambrell, F. L., 200, 250.  
 Ganter, W., 424.  
 Garay, A. Delgado de, 182, 388.  
 García-Tejero, F. Domínguez, 168.  
 Gardiner, J. G., 97.  
 Gardner, J. C. M., 90.  
 Gardner, M. W., 114.  
 Garman, P., 356, 357.  
 Gasow, H., 348.  
 Gasser, R., 383.  
 Gay, F. J., 314.  
 Geering, Q. A., 213.  
 Gersdorff, W. A., 96, 428.  
 Gertler, S. I., 122, 126, 409.  
 Ghosh, C. C., 227.  
 Giannotti, O., 107, 167.  
 Gillham, E. M., 166.  
 Gilmore, J. U., 52.  
 Ginsburg, J. M., 251.  
 Girault, A. A., 216.  
 Given, B. B., 68.  
 Glasgow, H., 254.  
 Glasgow, R. D., 259, 260.  
 Glendenning, R., 43, 59, 365.  
 Goble, G. J., 251.  
 Golding, F. D., 304.  
 Gomez-Clemente, F., 150.  
 Gómez-Menor, J., 96.  
 Gonçalves, C. R., 76.  
 Goodhue, L. D., 136, 255, 259, 412.  
 Gorham, R. P., 11, 109.  
 Gösswald, K., 212, 333, 343.  
 Gough, H. C., 164.  
 Gourlay, E. S., 418.  
 Graham, E. H., 418.  
 Graham, S. A., 79.  
 Gram, E., 348.  
 Grandfield, C. O., 363.  
 Grasby, C. G., 132.  
 Gray, H. E., 78.  
 Gray, K. W., 232.  
 Gray, R. A. H., 165.  
 Grayson, J. M., 250.  
 Greaves, T., 158, 315.  
 Greenwood, D. E., 358.  
 Gregor, F., 329.  
 Gregory, F. W., 13.  
 Grison, P., 138, 311, 422.  
 Guignard, P., 279.  
 Guilhon, J., 420.  
 Günthart, E., 384.  
 Gurcharan Singh Sohi, 68.  
 Gusev, V. I., 304.  
 Guthrie, J. E., 428.  
 Gyrisko, G. G., 256, 262.  
 Hackman, R. H., 220.  
 Hagen, K. S., 410.  
 Hall, W. J., 68.

- Haller, H. L., 412, 413, 428.  
 Hallock, H. C., 396.  
 Hambleton, E. J., 376.  
 Hambleton, J. I., 109.  
 Hammond, G. H., 10.  
 Handford, R. H., 304.  
 Härdtl, H., 329.  
 Haring, R. C., 179.  
 Harman, S. W., 257.  
 Harmston, F. C., 400.  
 Haroon Khan, M., 373.  
 Harper, A. S., 342.  
 Harris, R. V., 207.  
 Harvey, W. C., 308.  
 Haseman, L., 56, 173.  
 Hatch, M. H., 267.  
 Hattingh, G. C., 142.  
 Haviland, E. E., 32.  
 Hawkins, J. H., 247.  
 Hawkins, R. S., 167.  
 Hayes, R. A., 412.  
 Hayward, K. J., 65.  
 Heinrich, C., 300.  
 Helson, G. A. H., 156, 158.  
 Hely, P. C., 370.  
 Hem Singh Pruthi, 428.  
 Hervert, V., 102.  
 Hervey, G. E. R., 199, 263, 404.  
 Herviaux, 194.  
 Hetrick, L. A., 264, 405.  
 Heuberger, J. W., 121, 264.  
 Hey, G. L., 26, 189.  
 Higgins, E., 177, 376.  
 Hill, H., 308.  
 Hill, R. E., 335.  
 Hille Ris Lambers, D., 39.  
 Hills, O. A., 398.  
 Hinman, F. G., 232.  
 Hodson, A. C., 79.  
 Hoffmann, A., 137.  
 Hogan, T. W., 368, 416.  
 Holbeche, J., 369.  
 Holdaway, F. G., 6, 66, 266, 391.  
 Hollick, F. S. J., 24.  
 Hopping, G. R., 59.  
 Horton, J. R., 338.  
 Hoskins, W. M., 115.  
 Hough, W. S., 263.  
 Houser, J. S., 84.  
 Howe, R. W., 384.  
 Hoyman, W. C., 228.  
 Hockett, H. C., 200, 252, 300.  
 Hungerford, H. B., 23.  
 Hurst, H., 204.  
 Husain, M. Afzal, 186.  
 Hustache, A., 17.  
 Il'inskaya (Iljinskaya), M. I., 277.  
 Il'inskiĭ, A. M., 40.  
 Ingle, L., 119.  
 Isely, D., 181.  
 Ivy, E. E., 47, 175, 397.  
 İyriboz, N., 61.  
 Jacks, H., 14.  
 Jackson, M. L., 392.  
 Jacob, F. H., 39, 164.  
 Jacobson, L. A., 269.  
 Jahn, E., 331.  
 Jameson, J. D., 340.  
 Janisch, R., 39.  
 Jannone, G., 135, 286, 307, 377.  
 Jarvis, H., 221, 271.  
 Jary, S. G., 5.  
 Jenkins, C. F. H., 158, 222.  
 Jensen, D. D., 266, 391.  
 Jeppson, L. R., 111, 112, 113, 114.  
 Jewett, H. H., 232.  
 Joessel, P. H., 195.  
 Johnson, J. P., 360, 361.  
 Johnson, R. M., 428.  
 Jones, E. T., 23, 338.  
 Jones, H. A., 85, 177.  
 Jones, J. D., 384.  
 Jones, M. A., 428.  
 Jones, M. G., 39.  
 Kac, A., 100.  
 Kalandra, A., 101.  
 Kassanis, B., 206.  
 Kat'kov, N. N. Bogdanov-, 40.  
 Kearns, C. W., 119.  
 Kearns, H. G. H., 94.  
 Keifer, H. H., 130, 325.  
 Kelsey, J. M., 418.  
 Kelsheimer, E. G., 79.  
 Kemp, H. K., 132, 158.  
 Kennedy, J. S., 134.  
 Key, K. H. L., 133.  
 Khan, Abdul Wahid, 186.  
 Khan, M. Haroon, 373.  
 King, H. E., 339.  
 Knechtel, W. K., 148, 286.  
 Knight, R. L., 340.  
 Knowles, F. L., 173.  
 Knowlton, G. F., 109, 125, 400, 411.  
 Korsakov, M. N. Rimskiĭ-, 304.  
 Kotlyar, L. M., 197.  
 Kotte, W., 104.



- Kozhanchikov, I. V., 277, 342.  
 Kramer, M., 86.  
 Kratochvíl, J., 102, 103.  
 Krishnamurti (Krishnamurthy), B., 15, 16.  
 Kulash, W. M., 55.  
  
 LaBelle, D., 356.  
 LaDue, J. P., 49.  
 La Ferla, A., 272, 284.  
 Laing, F., 305.  
 Lamas C., J. M., 75.  
 Lambers, D. Hille Ris, 39.  
 Landaluze, P. Urquijo, 152.  
 Lange jr., W. H., 112, 113, 114, 117.  
 Langford, G. S., 119, 260, 301.  
 La Plante jr., A. A., 199, 258.  
 la Rosa, E. de, 334.  
 Latta, R., 120.  
 LeGoupils, P., 279.  
 Lepage, H. S., 107, 167.  
 Lepesme, P., 225, 304.  
 Lever, R. J. A. W., 43, 294.  
 Levin, C., 52.  
 Lewis, H. C., 140.  
 Liebermann, J., 19.  
 Lima, A. da Costa, 77.  
 Lima, A. D. Ferreira, 170.  
 Lindgren, D. L., 49, 57.  
 Lindquist, A. W., 177.  
 Linsley, E. G., 174.  
 Lloyd, N. C., 276, 316.  
 Look, W. C., 6.  
 Lucchese, E., 281, 285, 379.  
 Lupo, V., 284, 379.  
 Luziau, R., 305.  
  
 McCarthy, T., 371.  
 McCollough, G. T., 85.  
 MacDonald, D., 339.  
 Macedo, A., 106.  
 McGarr, R. L., 52, 54.  
 McGovran, E. R., 96, 428.  
 McGuffin, W. C., 268.  
 McKenzie, H. L., 322.  
 Mackerras, I. M., 190.  
 McKinney, K. B., 398.  
 McKinstry, A. H., 339, 341.  
 Madden, A. H., 177.  
 Maddock, D. R., 400.  
 Magerstein, C., 102.  
 Magie, R. O., 200.  
  
 Manns, T. F., 402.  
 Manolache, C., 148.  
 Manson, G. F., 10.  
 Manzoor Abbas, 31.  
 Mari, A. Quintana-, 151.  
 Marie, A., 304.  
 Márquez, V. Moreno, 153.  
 Martin, C. H., 174, 392, 409.  
 Martin, Henri, 70, 146, 198.  
 Masi, L., 226, 227.  
 Mason, A. C., 128.  
 Mason, F. R., 273.  
 Matthews, R. E. F., 419.  
 May, A. W. S., 274.  
 Mendiola, E. Ferrer, 334.  
 Mendizábal, M., 153, 155.  
 Menor, J. Gómez-, 96.  
 Menzies, J. D., 297.  
 Méquignon, A., 424.  
 Metcalf, R. L., 119.  
 Michelbacher, A. E., 110, 111, 114, 115.  
 Michelmores, A. P. G., 163.  
 Milam, J., 127.  
 Miles, H. W., 24, 303.  
 Miles, M., 24.  
 Miller, L. W., 137.  
 Miller, W. L., 342.  
 Mills, A. T., 414.  
 Mimeur, J. M., 427.  
 Miner, F. D., 181.  
 Mishchenko, A. I., 41.  
 Mitchell, B. L., 342.  
 Mitscherlich, H., 234.  
 Mohammad Afzal, 31.  
 Mohan Singh, 428.  
 Molinari, O. Chiesa, 170.  
 Monroe, H. A. U., 29, 267.  
 Moore, M. H., 94.  
 Morales Agacino, E., 153.  
 Moreau, L., 194.  
 Moreland, R. W., 47.  
 Moreno, I., 50.  
 Moreno Márquez, V., 153.  
 Morera, A. Benitez, 155.  
 Morrill jr., A. W., 399.  
 Mors, H., 233, 235, 238.  
 Moul, E. T., 230.  
 Moutia, A., 1.  
 Muesebeck, C. F. W., 355.  
 Muma, M. H., 119.  
 Munck, C., 426.  
 Munding, F. G., 140, 199, 393.  
 Mungomery, R. W., 28, 366.  
 Munro, J. A., 228, 232, 267.  
 Munson, S. C., 57, 116.

Nath Sapra, Amar, 31, 68.  
 Nelson, H. D., 227.  
 Nelson, O. A., 389.  
 Nepveu, P., 280, 290.  
 Nesbitt, H. H. J., 168, 411.  
 Neuweiler, E., 143.  
 Neves, C. M. Baeta, 333.  
 Nickels, C. B., 54, 179, 265.  
 Nicol, J., 87.  
 Nicolas, G., 270.  
 Niklas, O. F., 237, 240, 330.  
 Nikolova, V., 385.  
 Norris, D. O., 156, 193.  
 Novák, S., 100.  
 Nunberg, M., 27.  
  
 Olalquiaga Fauré, G., 8, 354, 355.  
 Oliveira, M. de L. d', 333.  
 Oman, P. W., 402.  
 Orelli, O. Schneider-, 202, 271, 380.  
 Orlando, A., 86.  
 Osburn, M. R., 55.  
 Ostrovskii (Ostrovsky), N. I., 346.  
 Otero, A. R., 17.  
 Owens, H. B., 405.  
 Oxley, T. A., 384.

Page, A. B., 428.  
 Paillot, A., 194, 195, 232, 278.  
 Painter, R. H., 23.  
 Pairoa Epple, H., 7, 19.  
 Palmiter, D. H., 228.  
 Parencia jr., C. R., 47, 397.  
 Parker, R. L., 363, 391.  
 Parkin, E. A., 210.  
 Parks, T. H., 267.  
 Parr, W. J., 325.  
 Pasfield, G., 219, 369.  
 Patton, R. L., 45, 251.  
 Pearson, E. O., 342.  
 Peat, J. E., 341.  
 Peck, O., 185.  
 Peet, W. V., 165.  
 Pepper, B. B., 13.  
 Pereira, H. F., 105, 167.  
 Perkins, J. F., 309.  
 Perron, J. P., 12.  
 Peters, G., 424.  
 Petherbridge, F. R., 24.  
 Pfeffer, A., 101.  
 Phillips, A. M., 58.  
 Phillips, V. T., 376.

Pickles, A., 88, 141.  
 Piemeisel, R. L., 337.  
 Pierce, W. C., 54, 179.  
 Pingle, S. V., 376.  
 Pinkus, R., 22.  
 Pitta Simões, J. M., 353.  
 Planes, S., 149.  
 Plank, H. K., 395.  
 Plante jr., A. A. La, 199, 258.  
 Platt, A. W., 338, 364.  
 Plumb, G. H., 361.  
 Poppius, B., 213.  
 Porter, H. S., 230.  
 Posnette, A. F., 88.  
 Potter, C., 166, 309.  
 Prentice, A. N., 341.  
 Prentice, I. W., 207.  
 Price, W. A., 125.  
 Pruthi, Hem Singh, 428.  
 Pryor, M. G. M., 202.  
 Purcallas Salvá, P., 22.  
 Pussard, R., 137, 138, 289.  
 Putman, W. L., 182.  
 Pyenson, L., 263.

Quintana-Marí, A., 151.

Rahman, K. A., 31, 68, 373.  
 Rakshpal, R., 374.  
 Randall, T. E., 299.  
 Rao, D. Seshagiri, 15, 16.  
 Raucourt, M., 420.  
 Rawlins, W. A., 118, 256.  
 Read, W. H., 328.  
 Reeks, W. A., 8.  
 Régnier, R., 194.  
 Reid, W. D., 419.  
 Reier, J., 240.  
 Rekk, G. F., 42.  
 Remaudière, G., 423.  
 Richardson, C. H., 126, 400, 401.  
 Richey, F. D., 94.  
 Rilett, R. O., 400.  
 Riley, R. L., 259.  
 Rimskii-Korsakov, M. N., 304.  
 Risbec, J., 427.  
 Ris Lambers, D. Hille, 39.  
 Rivnay, E., 214.  
 Roark, R. C., 175.  
 Robbie, W. A., 403.  
 Roberti, D., 287.  
 Robertson, W. H., 33.



- Rochford, R. R., 315.  
 Rodríguez, S. J., 387.  
 Rodríguez Lz., L., 18.  
 Roebuck, A., 25.  
 Rogerson, J. P., 165, 295.  
 Roonwal, M. L., 198.  
 Rosa, E. de la, 334.  
 Rosa de Azevedo, A., 156.  
 Rosenberg M., G., 20, 355.  
 Rostrup, S., 380.  
 Roubaud, E., 420.  
 Rovira V., F., 21.  
 Rozsypal, J., 100, 104, 329.  
 Ruichin, Yu. V., 40.  
 Ruiz Castro, A., 149, 151, 270.  
 Rungs, C., 36.  
 Russo, G., 226, 227, 419.  
 Ruston, D. F., 339.  
 Ryžkov, N., 100.  
 Sakimura, K., 402.  
 Salt, G., 24.  
 Salt, R. W., 108.  
 Salva, P. Purcallas, 22.  
 Sanders, E., 54.  
 Santis, L. De, 333.  
 Sapra, Amar Nath, 31, 68.  
 Savzdarg, É. É., 347.  
 Sayed, M. Taher, 286.  
 Scaramuzza, L. C., 17, 169.  
 Schad, C., 279.  
 Schaerffenberg, B., 73.  
 Schechter, M. S., 412.  
 Schilder, F. A., 39.  
 Schimitschek, E., 39.  
 Schneider, F., 147, 201.  
 Schneider-Orelli, O., 202, 271, 380.  
 Schopp, R., 230.  
 Schread, J. C., 356, 361.  
 Schroeder, W. T., 404.  
 Schulz, H., 74.  
 Schweig, K., 214.  
 Schwerdtfeger, F., 212, 349.  
 Scott, L. B., 127, 403.  
 Seamans, H. L., 10, 108.  
 Sélariès, P., 194.  
 Sellers, W. F., 21, 139.  
 Seshagiri Rao, D., 15, 16.  
 Severin, H. H. P., 171, 172.  
 Shands, W. A., 109, 229.  
 Shaw, F. R., 410.  
 Shaw, H., 304.  
 Shaw, J. G., 321.  
 Shchegolev, V. N., 40.  
 Sheets, L. W., 180.  
 Sheppard, R. W., 335, 412.  
 Shevchenko, M. I., 148.  
 Shirck, F. H., 116, 231.  
 Shull, W. E., 230, 231.  
 Siegler, E. H., 126, 334, 409.  
 Silberschmidt, K. M., 86.  
 Silva, A. G. d'Araujo e, 77.  
 Silva, P., 33, 142.  
 Silvestri, F., 282, 285, 286.  
 Simmonds, F. J., 294.  
 Simmons, P., 123.  
 Simões, J. M. Pitta, 353.  
 Simon, L., 280.  
 Simpson, G. W., 229, 253.  
 Sims, R. B., 6.  
 Sinclair, W. B., 57.  
 Singh, Mohan, 428.  
 Singh Pruthi, Hem, 428.  
 Singh Sohi, Gurcharan, 68.  
 Slape, H. W., 416.  
 Slate, G. L., 140.  
 Slesman, J. P., 231.  
 Sloan, W. J. S., 42, 273, 275, 368.  
 Smith, C. L., 265, 394.  
 Smith, C. M., 389.  
 Smith, F. F., 253, 255, 400.  
 Smith, G. L., 110, 111, 115.  
 Smith, H. D., 77.  
 Smith, H. S., 323.  
 Smith, J. H., 241, 271, 315.  
 Smith, L. M., 111.  
 Smith, R. F., 110, 114, 115.  
 Smith, R. H., 53.  
 Smith, R. W., 232.  
 Smith, T. E., 52.  
 Snapp, O. I., 176.  
 Soares, O. M., 170.  
 Soares Brandão filho, J., 107.  
 Sohi, Gurcharan Singh, 68.  
 Solomon, M. E., 209.  
 Soloway, S. B., 412.  
 Sontakay, K. R., 373.  
 Sorauer, P., 39.  
 Sorenson, C. J., 44.  
 Soulié, H., 195.  
 Souza, H. Dias de, 169.  
 Spencer, G. J., 59, 60.  
 Speyer, E. R., 325.  
 Squire, F. A., 88.  
 Staehelin, M., 224.  
 Stafford, E. M., 111, 114.  
 Stammers, F. M. G., 304.  
 Staniland, L. N., 94.  
 Stanley, W. W., 124.  
 Stapel, C., 348.

Starr, D. F., 117, 321.  
 Starý, B., 100, 102, 103, 104.  
 Stearns, L. A., 264.  
 Steer, W., 223.  
 Steiner, L. F., 81, 318.  
 Steinfatt, O., 237, 241.  
 Steinhäus, E. A., 51, 78, 129.  
 Steinweden, J. B., 321, 323, 324.  
 Stephens, R. M., 368.  
 Stevenson, W. A., 46, 180.  
 Stone, P. C., 173.  
 Strickland, A. G., 415.  
 Stubbings, W. A. K., 142.  
 Stubbs, L. L., 200.  
 Sturm, H., 73.  
 Subramanyam, T. V., 96.  
 Suire, J., 270, 289, 290.  
 Suit, R. F., 140.  
 Summerland, S. A., 81, 318.  
 Swanson, C. H., 111, 115.  
 Sweetman, H. L., 269, 406.  
 Swisher, E. M., 229.  
 Swynnerton, R. J. M., 306.  
 Taher Sayed, M., 286.  
 Taramarcáz, J., 291.  
 Tate, H. D., 362, 408.  
 Tattersfield, F., 166.  
 Taylor, G. G., 61, 63.  
 Taylor, T. H. C., 213.  
 Tejero, F. Domínguez García-, 168.  
 Telford, H. S., 428.  
 Thelu, P., 305.  
 Thomas, B., 384.  
 Thomas, D. C., 208.  
 Thomas, W. A., 122.  
 Thompson, R. W., 9.  
 Thompson, W. R., 200, 376.  
 Thorne, F. T., 228.  
 Thorold, C. A., 88.  
 Throckmorton, R. I., 363.  
 Thwaites, T. W., 112.  
 Timonin, M. I., 185.  
 Toledo, A. A. de, 107.  
 Tolunay, M., 387.  
 Townsend, C. H. T., 139.  
 Townsend, J. F., 357.  
 Trägårdh, I., 294.  
 Trehan, K. N., 4, 376.  
 Trinchieri, G., 304.  
 Trouvelot, B., 422.  
 Turnbull, W. H., 60.  
 Turner, N., 248, 358, 359.  
 Turner, W. F., 401.

Twinn, C. R., 13.  
 Tyburetz, F. W., 103.  
 Urquhart, D. H., 90.  
 Urquijo Landaluze, P., 152.  
 Usinger, R. L., 50, 391.

Vappula, N. A., 232.  
 Vayssiére, P., 377.  
 Veitch, R., 241.  
 Venkatacharya, B. V., 3.  
 Venturi, F., 378.  
 Vergani, A. R., 414.  
 Vieira Borges, M. de L., 333.  
 Viel, G., 290, 291, 420.  
 Vielwerth, V., 100.  
 Viennot-Bourgin, G., 194.  
 Vincent, 194.  
 Vinet, E., 194.  
 Vogel, M. A., 267.  
 Vukasović, P., 386.

Wadley, F. M., 118.  
 Wahid Khan, Abdul, 186.  
 Walkden, H. H., 338.  
 Wallace, C. R., 35, 190, 218, 272, 372.  
 Wallace, P. P., 359, 360.  
 Walton, C. L., 94.  
 Walton, R. R., 127, 231, 266.  
 Ward, I. J., 34.  
 Wason, E. J., 317, 371, 372.  
 Watkins, T. C., 261.  
 Watson, E. B., 9.  
 Watson, J. R., 23, 80.  
 Watson, M. A., 204.  
 Weatherley, P. E., 340.  
 Webster, R. L., 296, 299.  
 Wehrle, L. P., 408.  
 Weigel, C. A., 122.  
 Wellenstein, G., 233, 234, 236, 238, 239, 240, 241.  
 Wells, W. G., 243.  
 Wene, G. P., 118, 256.  
 West, F. T., 399.  
 West, J., 342.  
 West, R. F. K., 190.  
 Wheeler, E. H., 199, 200, 258, 261.  
 White, R. M., 365.  
 White, W. H., 376.  
 Whitehead, F. E., 178, 407.

- Whitfield, F. G. S., 304.  
Wiesmann, R., 70, 143, 144.  
Wigglesworth, V. B., 336.  
Wilbur, D. A., 363.  
Wilcoxon, F., 265.  
Wilkinson, D. S., 226.  
Wilson, F., 302, 414.  
Wilson, G. F., 25, 69, 270, 424.  
Wilson, H. B., 314.  
Wilson, H. F., 392.  
Winteringham, F. P. W., 336.  
Wishart, G., 139.  
Wittwer, S. H., 56.  
Wolcott, G. N., 375.  
Wolfenbarger, D. O., 121, 364.  
Womersley, H., 132 (note).  
Wood, S. L., 400.  
Woodside, A. M., 248, 249.  
Worlidge, J., 267.  
Wright, D. W., 24, 207, 213.  
Wyman, O. L., 229.  
Yeager, J. F., 57, 116.  
Yetter jr., W. P., 402.  
Yothers, M. A., 131, 406, 407.  
Young, A. H., 88.  
Yuganova, O. N., 41, 313.  
Yunus, M., 373.  
Zakharov, L. Z., 343, 344.  
Zappe, M. P., 356, 361.  
Zeck, E. H., 316.  
Zehngraff, P. J., 79.  
Zikán, W., 106.  
Zinkernagel, R., 383.  
Zirnitis, J., 350.  
Zwölfer, W., 234.
-



## GENERAL INDEX.

In the case of scientific names, the page reference is cited only under the heading of the generic name.

## A.

- A3, 110, 111, 112, 114.  
A20, 110, 111, 112, 113.  
*abbreviata*, *Aphis* (see *A. rhamni*).  
*abbreviatus*, *Diaprepes*.  
*abderus*, *Diloboderus*.  
*abdominalis*, *Aulacophora* (*Rhaphido-palpa*).  
*Aberia kaffra*, spraying of, against *Dacus ferrugineus tryoni* in S. Australia, 415.  
*Abies alba*, *Tortrix murinana* on, in Austria, 73; pests of, in Czechoslovakia, 101; *T. murinana* on, in Germany, 72; Aphids on, in Switzerland, 202.  
*Abies balsamea*, pests of, in Canada, 8, 9, 99.  
*Abies pectinata* (see *A. alba*).  
*abietina*, *Pristiphora*.  
*abietinus*, *Mindarus*.  
*abietis*, *Hylobius*; *Neodiprion*.  
*abietum*, *Lygaeonematus* (see *Pristiphora abietina*).  
*abnormis*, *Leptomastidea*.  
*abortivus*, *Gymnoproctus*.  
*abrupta*, *Empoasca*.  
*abscissor*, *Bracon*.  
Abyssinia, Coccinellid on cereals in, 377; list of pests in, 377.  
*Acantholyda erythrocephala* (on pine), in Connecticut, 361; bionomics of, in Germany, 212, 349; aeroplane dusting against, 213, 349.  
*Acantholyda nemoralis* (see *A. pinivora*).  
*Acantholyda pinivora* (on pine), in Czechoslovakia, 27, 28, 329; in Poland, 27, 28; in Saxony, 329; bionomics of, 27, 329, 330; measures against, 28, 330.  
*Acantholyda stellata* (see *A. pinivora*).  
*Acanthoscelides* (see *Bruchus*).  
*Acarapis woodi*, 420.  
*Acaulona peruviana*, parasite of *Dysdercus ruficollis* in Peru, 75.  
*Acer* (see *Maple*).  
*Aceria baccharices*, sp. n., on *Baccharis* in California, 325.  
*Aceria camelliae*, sp. n., on *Camellia japonica* in California, 325.  
*acericola*, *Pulvinaria*.  
*aceris*, *Phenacoccus*.  
Acetone, as a solvent for DDT, 64, 108, 112, 120, 184, 211, 253, 255, 328, 405; other uses of, as a solvent, 120, 166, 167, 183, 407; in mixtures for aerosols, 253, 255, 405.  
Acetophenone, as solvent for DDT, 85.  
1-Acetyl-2-phenylhydrazine, toxicity of, to *Cydia pomonella*, 409.  
*Achaea*, fruits attacked by, in Sierra Leone, 28.  
*Achaea janata*, attacking *Citrus* fruits in Gwalior, 374.  
*Achras zapota*, experiments with *Anastrepha serpentina* and, in Mexico, 321.  
*Acleris variana*, disease of, in U.S.A., 51.  
*Acridiophaga aculeata* (see *Sarcophaga*).  
*Acridomyia sacharovi*, bionomics of, in France, 423; in U.S.S.R., 423.  
*Acrobasis caryae*, sprays against, on pecan in Texas, 54, 179, 265.  
*Acrocercops bifasciata*, on cotton in Somalia, 226, 227; new Eulophid possibly parasitic on, 227.  
*Acroclita naevana* (see *Rhopobota*).  
*Acrostalagmus*, mites disseminating, in fungus cultures in Australia, 193.  
*Acrosternum hilare*, on peach in U.S.A., 130, 249; types of injury to peach fruits by, 249; dust against, 130.  
Acrylonitrile, tests of, as fumigant against insects, 424, 425.  
*aculeata*, *Sarcophaga* (*Acridiophaga*).  
*aculeatus*, *Haplothrips*.  
*acutus*, *Platymoideus*.  
*Acyrtosiphon* (see *Macrosiphum*).  
*Adalia bipunctata* (predacious on Aphids), in Italy and Sicily, 420; in Rumania, 148.  
*Adansonia digitata*, weevil on, in Senegal, 427.  
*Adelges* (see *Chermes*).  
*Adelphocoris superbus* (in U.S.A.), on cotton, 46; bionomics of, on lucerne, 44, 45; measures against, 45, 46.  
Adhesives, banding with, 35, 42, 89, 138, 225, 233, 283, 411.  
*adoridum*, *Pseudococcus*.  
*Adopaea lineola*, on wheat in Italy, 378.  
*Adoxus obscurus*, bionomics and control of, on vines in Switzerland, 147.  
*adreptella*, *Carposina*.

- Aegeria exitiosa*, DDT against, on peach in Connecticut, **360**.
- Aegeria pictipes*, DDT ineffective against, on peach in Canada, **98**.
- Aegeria scitula*, bionomics and control of, on *Cornus florida* in Connecticut, **360**.
- Aegeria tipuliformis*, on currant and gooseberry in Moravia, **101**.
- aegopodii*, *Cavariella*.
- aenea*, *Anomala dubia*.
- aeneovirens*, *Rhynchites*.
- aeneoviridis*, *Catolaccus*.
- aeneus*, *Chalcodermus*; *Meligethes*.
- aequalis*, *Euaresta*; *Heterobostrychus*.
- aereus*, *Eugaster*; *Monodontomerus*.
- Aerobacter cloacae*, possibly infecting *Gnorimoschema operculella*, **130**.
- Aerosols, uses of insecticides as, **46, 78, 120, 253, 254, 255, 256, 259, 389, 400, 405**; tests of stability of DDT in formulae for, **412**; factors affecting particle size of, **259**; fog generators for distributing, **121, 255, 259**; apparatus for testing, **136**.
- aeruginosus*, *Syrphophagus* (*Microterys*).
- aestivum*, *Apion* (see *A. trifolii*).
- aethiopicus*, *Antrocephalus*.
- affinis*, *Psylliodes*.
- affinitalis*, *Loxostege*.
- Africa, French Equatorial, coffee pests in, **225, 305**.
- Africa, French West, swollen-shoot of cacao in, **89**; Coleoptera on cucurbits in, **427**; pests of harvested ground-nuts in, **216, 305**; Scolytid in oil-palm nuts in, **305**; Coccid on sorghum in, **428**; weevil in seeds of *Raphia hookeri* exported from, **136**; *Pachymerus lacerdae* not found in, **305**.
- Africa, South, *Cydia pomonella* on apricot in, **142**; cotton pests in, **339**; introduction of *Cremnops vulgaris* into, against *Loxostege frustralis*, **294**; *Metaphycus helvolus* introduced into California from, **323**.
- africana*, *Gryllotalpa*.
- Agalliana ensigera*, not transmitting yellow wilt of beet in Argentina, **426**.
- Agathis pumila*, utilisation of, against *Coleophora laricella* in Canada, **9, 302**.
- Agathis stigmatera*, parasite of *Diatraea saccharalis* in Brazil, **169**.
- Aglais urticae*, tests of azobenzene against, in Britain, **190**.
- agonus*, *Limoni*.
- Agral 2, **64**.
- Agrilus anxius*, relation of, to die-back of birch in Canada, **9, 99, 302**.
- Agrilus hyperici*, utilisation of, against *Hypericum perforatum* in Australia, **161, 220**; imported into California, **161**.
- Agrilus rubicola*, on raspberry in New York, **140**.
- Agrilus ruficollis*, on raspberry in New York, **140**.
- Agriotes*, crops and cultural measures in relation to, in Britain, **5, 24**.
- Agriotes lineatus*, on cotton in Italy and Sicily, **419**; bait attracting adults of, in Switzerland, **145**.
- Agrochola* spp., on *Salix viminalis* in Czechoslovakia, **102**.
- Agromyza ambigua* (see *Domomyza*).
- Agromyza cicerina* (see *Liriomyza*).
- Agromyza flaveola* (see *Liriomyza*).
- Agromyza niveipennis*, parasites of, on oats in Italy, **378**.
- Agromyza phaseoli* (on beans), bionomics of, in Mauritius, **1, 2**; in Queensland, **242**; variety of bean resistant to, **1**; experiments against, **2, 242**.
- Agropyrum repens*, *Gastrimargus musicus* damaging, in W. Australia, **222**; *Domomyza ambigua* on, in Scotland, **188**.
- Agrostis*, *Blissus hirtus* damaging, in New Jersey, **394**.
- Agrotis*, damaging tree seedlings in Britain, **309**.
- Agrotis fennica*, on lucerne in Br. Columbia, **34**.
- Agrotis orthogonia*, experiments on starvation method of control of, in Canada, **108**.
- Agrotis saucia* (see *Peridroma*).
- Agrotis segetum*, on cotton in Sicily, **419**; parasite of, **232**.
- Agrotis ypsilon*, on potato in Fiji and Argentina, **43, 65**; bait for, on lucerne in Queensland, **271**.
- Agrypon flaveolatum*, parasite of *Clysiana ambiguella* in Switzerland, **144**.
- Aircraft, carriage and control of insect pests in, **45, 46, 99**; for transporting beneficial insects, **43, 77, 78**; use of, for locating locust swarms, **164**; distribution of insecticides from, **28, 46, 99, 109, 164, 177, 213, 239, 240, 259, 299, 314, 331, 349, 416, 417**.
- AK20, **110, 111, 112, 113, 114**.
- Alabama, *Macropsis* spp. on *Prunus* spp. in, **402**.
- Alabama argillacea* (on cotton), in Argentina, **65**; in Barbados, **22**; in Brazil, **107**; in Peru, **76**; in Texas, **47, 48, 176**; parasites of, **65, 76**; insecticides against, **22, 47, 48, 108, 176**.
- alba*, *Rhipsiella* (*Rhizococcus*).
- Alberta, cereal pests in, **10, 97, 269, 338, 365**; *Recurvaria milleri* on pine in, **59**; Aphids on potato in, **11**.
- albipennis*, *Apanteles*.

- albipes*, *Technomyrmex* (see *T. detorquens*).
- Albizia* spp., pests of, in Ceylon, **3** ; pests of, in Fernando Po, **36, 37**.
- albohirtum*, *Dermolepida*.
- alcinoë*, *Bunaea*.
- alcis*, *Hexameva*.
- Alcohol, use of, for separating *Macrocentrus* cocoons from host, **174, 175** ; as a solvent, **126, 193, 351**.
- Alcohols, use of, in emulsion concentrates, **221**.
- Alder, Halticid on, in Nova Scotia, **301**.
- Ale, in bait for tomato moth, **328**.
- Aleochara sparsa*, bionomics of, attacking *Psila rosae* in Britain, **214**.
- Aleurocanthus citripedus*, **186**.
- Aleurocanthus husaini*, bionomics of, on Citrus in Punjab, **186, 187**.
- Aleurocanthus punjabensis* (see *A. woglumi*).
- Aleurocanthus spiniferus*, *A. woglumi* recorded as, in India, **186**.
- Aleurocanthus woglumi* (on Citrus), in Mexico, **77, 387** ; in Punjab, **186, 187** ; bionomics of, **77, 187** ; natural enemies and biological control of, **77, 78, 187, 387** ; synonymy of, **186**.
- Aleurolobus citrifolii*, bionomics of, in Punjab, **186, 187**.
- Aleurolobus marlattii*, bionomics of, in Punjab, **186, 187**.
- Aleurothrixus howardi*, parasites of, in Argentina, **66**.
- Aleurotuberculatus murrayae*, on Citrus in Punjab, **186**.
- alfalfae*, *Empoasca*.
- Algeria, *Cydia pomonella* in, **196** ; *Schistocerca gregaria* in, **36**.
- Alizarin, effect of, on termites, **375**.
- Almond, *Quadraspidiotus perniciosus* on, in Argentina, **65** ; pests of, in California, **111** ; used in tests of treatments against *Capnodis* in Palestine, **214, 215** ; *Diloba coeruleocephala* on, in Spain, **149**.
- Almond Mite, Brown (see *Bryobia praetiosa*).
- alni*, *Haltica* (*Altica*) *ambiens*.
- aloëus*, *Strategus*.
- Alphitobius*, measures against, in stored ragi in Mysore, **16**.
- Alsophila pometaria*, in Canada, **9, 301** ; parasites of, in Connecticut, **361** ; on apple, **301** ; on other trees, **9, 301, 361** ; spray against, **9**.
- alsophilae*, *Telenomus*.
- Alstonia scholaris*, treatment of timber of, against *Lyctus* in Queensland, **247**.
- Alternaria solani*, treatments against insects and, on potato in U.S.A., **229, 264** ; DDT ineffective against, **264**.
- althaeae*, *Tetranychus* (*Epitetranynchus*) (see *T. telarius*).
- Altica* (see *Haltica*).
- altiscuta*, *Pachyneuron*.
- Aluminium Arsenate, spraying with nascent, against Lepidoptera on vines, **278, 279** ; unsatisfactory against *Leptinotarsa decemlineata*, **143**.
- Aluminium Naphthenate, use of, in DDT sprays, **220**.
- Aluminium Oxide, as "safener" for lead arsenate, **372**.
- Aluminium Phosphate, in commercial ammonium phosphate, **151**.
- Aluminium Stearate, use of, in DDT sprays, **123, 124**.
- Amarantus*, *Epicauda atomaria* on, in Brazil, **107** ; *Nysius* on, in Hawaii, **66** ; *Lixus subtilis* on, in Uzbekistan, **347**.
- Amaryllis*, *Xanthopastis timais* on, in Brazil, **105**.
- ambiens*, *Haltica* (*Altica*).
- ambigua*, *Domomyza* (*Agromyza*).
- ambiguella*, *Clysiana* (*Clysia*).
- Amblypelta lutescens*, bionomics and control of, in Queensland, **275, 276**.
- Amblyteles*, parasite of *Aegeria scitula* in Connecticut, **360**.
- Amblyteles vitalis*, **360**.
- Amelanchier*, *Apatele* spp. on, in Pennsylvania, **409**.
- americana*, *Malacosoma* ; *Morrisoniella* ; *Periplaneta*.
- amerinae*, *Pseudoclavellaria* (*Cimbex*).
- Amicroplus collaris*, polyembryonic development of, **232**.
- amictorius*, *Exenterus*.
- Ammonia, as bait for *Rhagoletis cerasi*, **143** ; use of anhydrous, with soil fumigants, **117**.
- Ammonium Caseinate, as an emulsifier for oils, **150**.
- Ammonium Chloride, in commercial ammonium phosphate, **151**.
- Ammonium Dinitrocresylate, **33**.
- Ammonium Fluoride, in bait for *Rhagoletis cerasi*, **143**.
- Ammonium Nitrate, **56**.
- Ammonium Oleate, ineffective as bait for *Rhagoletis cerasi*, **144**.
- Ammonium Phosphate, as bait for *Dacus oleae*, **150, 151** ; analysis and composition of commercial, **151**.
- Ammonium Stearate, as bait for *Rhagoletis cerasi*, **143, 144**.
- Ammonium Sulphate, use of, on lead-arsenate treated turf, **14** ; in commercial ammonium phosphate, **151**.
- amoenum*, *Pelonium*.
- amorphophalli*, *Ripersiella* (*Rhizoecus*).
- Ampelopsis* (see *Parthenocissus*).



- Amphimallon majalis*, bionomics and control of, in New York, **200, 250**.
- Amphimallon solstitialis*, life-cycle and control of, in forest nurseries in Britain, **309**.
- Amphimallus* (see *Amphimallon*).
- amphinome*, *Catocephala* (*Dirphia*).
- Amphipyra pyramidoides*, on apple in U.S.A., **409**.
- Amphorophora rubi*, experiments with raspberry varieties and, in Britain, **298**.
- amphicornis*, *Blepharomyia*.
- amygdali*, *Appelia* (see *Anuraphis schwarzzi*); *Pulvinaria*.
- Amylbenzamide, as synergist for pyrethrum marc, **123**.
- Anabasine, permeability of insect cuticle by, **278**.
- Anabasine Sulphate, factors affecting permeability of insect cuticle by, **278**.
- Anabrus simplex*, lizard destroying, in Utah, **400**.
- Anacardic Acid, effect of, on termites, **375**.
- anachoreta*, *Strategus*.
- Anagrus*, parasite of *Tomaspis flavilata* in Br. Guiana, **427**; parasite of *Pseudococcus juniperi* in Kansas, **411**.
- Anamirta*, *Othreis* spp. on, in Gwalior, **875**.
- Anaphothrips orchidii*, not transmitting spotted wilt in Hawaii, **402**.
- Anasa tristis* (Squash Bug), in Ontario, **184**; in U.S.A., **249, 262, 266**; experimentally causing cat-facing of peaches, **249**; tests of insecticides against, **120, 180, 184, 262, 264**.
- Anastrepha fraterculus*, parasite of, in Argentina, **65**; on orange in Brazil, **106**.
- Anastrepha ludens*, vapour-heat treatment of mangos against, in Mexico, **117**.
- Anastrepha manihoti*, in shoots and fruits of cassava in Brazil, **106**.
- Anastrepha serpentina*, infesting fruits in Mexico and Texas, **321**; effect of temperature on development of, **321**.
- Anastrepha striata*, baits for, in Mexico, **144**.
- Anatis ocellata*, predacious on *Bupalus piniarius* in Germany, **74**.
- ancilla*, *Othreis* (*Ophideres*).
- ancoralis*, *Coccinella*.
- Ancylys comptana* (*fragariae*), tests of insecticides against, on strawberry in Canada, **98, 183**.
- Ancylys selenana*, bionomics and control of, on fruit trees in Italy, **379, 380**.
- ancylovorus*, *Macrocentrus*.
- andensis*, *Neorhizococcus*.
- Andrector atrofasciatus*, on beans in Arizona and Guatemala, **171**.
- Andrector ruficornis*, on beans in U.S.A. and W. Indies, **171**.
- Andrector sexpunctatus*, type of genus, **171**.
- Anethol, in baits for *Popillia japonica*, **119, 261**.
- Anethum graveolens* (see Dill).
- angellozi*, *Myiapis*.
- Angelita armillata*, parasite of *Tortrix murinana* in Germany, **72, 73**.
- angustus*, *Cynaecus*.
- Aniline, action of, in cockroaches, **57**.
- Anise (see *Pimpinella anisum*).
- Anisole, as solvent for DDT, **85**.
- Annona*, *Howardia biclavis* on, in Queensland, **246**; mixture containing leaves of, against *Calandra oryzae*, **17**.
- Annona cherimolia*, Coccids on, in Argentina and Chile, **65, 354**.
- Annona squamosa*, *Aonidiella orientalis* on, in Cuba, **323**; *Amblypelta lutescens* on, in Queensland, **275**.
- annuae*, *Rhopalosiphum*.
- annularis*, *Chlorophorus*.
- Anobium punctatum* (*striatum*), in building timbers in Sweden, **294**; technique of inducing oviposition by, on smooth surfaces, **418**.
- Anomala horticola*, bionomics and control of, damaging grassland and tree seedlings in Britain, **165, 166, 309**; baits attracting, in Switzerland, **144**.
- Anomalon biguttatum*, parasite of *Bupalus piniarius* in Germany, **74**.
- anonella*, *Cerconota*.
- Anopheles maculipennis*, measures against, in rice-fields in Portugal, **353**.
- antennata*, *Graptolitha*.
- antennator*, *Chariesterus*.
- Antestia*, DDT against, on coffee in Fr. Cameroons, **305, 306**.
- Anthidium*, pollination of lucerne by, in California, **174**.
- Anthomyia illocata*, parasite of *Gastri-margus musicus* in Queensland, **29**.
- Anthonomus grandis*, insecticides against, on cotton in Texas, **48, 175, 176, 398**.
- Anthonomus piri*, sprays against, on pear in Switzerland, **69, 145**; parasites of, **69**.
- Anthonomus pomorum* (on apple), in Britain, **26, 211**; in France, **138, 313**; in Moravia, **101**; in Switzerland, **70, 145**; insecticides against, **26, 70, 138, 145, 211, 313**.
- Anthonomus signatus*, insecticides against, on strawberry and dewberry in U.S.A., **122**.
- Anthonomus vestitus*, parasite and control of, on cottons in Peru, **75, 76**.

- Anthophila pariana*, on apple in Moravia and France, **101, 138**; bait attracting, in Switzerland, **145**.
- Anthracene Oil, mixture of phosphate and, against *Psila rosae*, **25**.
- anthracinus*, *Otiorrhynchus*.
- Anthrenus scrophulariae*, in Britain, **308**.
- Anthrenus verbasci*, factors affecting damage to nylon by, **45**.
- Anthrenus vorax*, damage to nylon by, **45**.
- Anthriscus cerefolium*, ringspot virus transmitted to, by *Hyadaphis sii*, **172**.
- Anticarsia gemmatalis*, DDT against, in St. Lucia, **93**.
- Anticarsia irrorata*, on sugar-cane in Argentina, **65**.
- Antigua, *Contarinia sorghicola* in, **130**.
- Antinonnin, **233**.
- antiqua*, *Hylemyia*; *Orgyia* (*Notolophus*).
- Antrocephalus aethiopicus*, possibly parasitic on *Coryra cephalonica* in Somalia, **226**.
- Antrocephalus crassipes*, sp. n., possibly parasitic on *Coryra cephalonica* in Somalia, **226, 227**.
- Ants, associated with Aphids, **125, 164**; associated with Coccids, **127, 316, 411**; destroying other insects, **27, 74, 86, 226, 284, 330, 348, 383**; use of, against forest pests, **212, 348**; measures against, **2, 10, 53, 92, 108, 115, 125, 127, 142, 161, 178, 267, 364, 371, 387, 411, 413**.
- Ants, Argentine (see *Iridomyrmex humilis*).
- Ants, Bulldog (see *Myrmecia gulosa*).
- Ants, Carpenter (see *Camponotus*).
- Ants, Leaf-cutting (see *Atta*).
- Ants, Meat or Mound (see *Iridomyrmex detritus*).
- Ants, Red Forest (see *Formica rufa*).
- Ants, Soldier (see *Myrmecia gulosa*).
- Anuraphis padi* (*helichrysi*), application of name, **295**.
- Anuraphis persicae-niger*, sprays against, on stone fruits in Australia, **159, 219**; Coccinellid predacious on, **219**.
- Anuraphis roseus* (on apple), in Britain, **296**; doubtful effect of DDT deposits on, in U.S.A., **83**.
- Anuraphis schwartzi*, on peach in Moravia, **101**.
- anxia*, *Lachnosterna* (*Phyllophaga*).
- anxius*, *Agrilus*.
- Anychus latus*, bionomics and control of, on papaya, etc., in Eritrea, **286, 287**.
- Aonidiella*, characters and key to species of, **322**.
- Aonidiella aurantii* (on *Citrus*), in Argentina, **66**; in Australia, **6, 162, 245**; in California, **49, 127, 227, 228, 324, 355**; in Chile, **353**; intercepted in Fiji, **43**; effect of temperature on infestation by, **228**; natural enemies and biological control of, **6, 66, 162**; tests and use of HCN against, **6, 227, 353**; other measures and experiments against, **6, 49, 353, 355**.
- Aonidiella citrina*, on ivy and *Citrus* in California, **126, 127**; ants hindering parasite of, **126, 127**.
- Aonidiella comperei*, food-plants of, in various countries, **322**.
- Aonidiella eremocitri*, on coconut in Pacific Is., **323**; on orchid in Thailand, **322**.
- Aonidiella eugeniae*, on *Myrciaria cauliflora* in Brazil, **323**.
- Aonidiella inornata*, food-plants of, in Formosa, Hawaii and Philippines, **323**.
- Aonidiella marginipora*, sp. n., on *Hydnocarpus* in Uganda, **322**.
- Aonidiella orientalis*, food-plants of, in various countries, **323**.
- Aonidiella paucitatis* (see *Hemiberlesia*).
- Aonidiella pernicio* (see *Quadraspido-tus*).
- Aonidiella replicata*, on *Hydnocarpus* in Uganda, **322**.
- Aonidiella taxus*, food-plants of, in California and Japan, **323**.
- aonidium*, auct., *Chrysomphalus* (see *C. ficus*).
- Apamea secalis*, parasite of, on cereals in Italy, **378**.
- Apanteles*, parasite of Limacodids in Ceylon, **3**; parasite of *Swammerdamia pyrella* in Italy, **282**; parasite of *Psara bipunctalis* in Mauritius, **2**; parasite of *Ocnogyna baetica* in Morocco and Spain, **155**; parasite of *Heliothis armigera* in Somalia, **226**.
- Apanteles albipennis*, bionomics of, in Germany, **72, 73**.
- Apanteles camachoi*, parasite of *Catocephala amphinome* in Chile, **7**.
- Apanteles congregatus*, *A. paphi* possibly a synonym of, **355**.
- Apanteles dirphiae*, parasite of *Catocephala amphinome* in Chile, **7**.
- Apanteles glomeratus*, establishment and utilisation of, against *Pieris rapae* in Australia, **162, 242**; parasite of *P. brassicae* in Europe, **155, 351-353**; parasites of, **351-353**.
- Apanteles paphi*, parasite of *Protoparce* in Chile, **355**; possibly a synonym of *A. congregatus*, **355**.
- Apanteles riverae*, parasite of *Orgyia antiqua* in Chile, **19**.
- Apanteles spurius*, parasite of *Ocnogyna* probably misidentified as, in Morocco, **155**.
- Apatele* (*Apatela*) spp., on *Amelanchier* and apple in Pennsylvania, **409**.

- Apateticus nigrolimbatus* (see *Podisus*).
- Apechthis capulifera*, parasite of *Lymantria monacha* in Germany, 237.
- Apechthis compunctor*, parasite of *Lymantria monacha* in Germany, 237.
- Apechthis rufata*, parasite of *Tortrix murinana* in Germany, 72, 73.
- Aphaenogaster pythia*, damaging turf in New South Wales, 371.
- Aphanus littoralis*, bionomics and control of, in stored ground-nuts in Nigeria, 216; possibly a synonym of *A. sordidus*, 216.
- Aphanus sordidus*, on harvested ground-nuts in Senegal, 216; *A. littoralis* possibly a synonym of, 216.
- Aphelinus mali* (parasite of *Eriosoma lanigerum*), effect of DDT on, in New South Wales, 317; value of, in Palestine, 273.
- Aphidecta obliterata*, predacious on *Chermes cooleyi* in Britain, 308.
- Aphidencyrus*, parasite of *Salpingogaster nigra* in Br. Guiana, 427.
- Aphidius* (parasite of Aphids), in Britain, 188, 310; in Morocco, 427; killed by DDT, 310.
- Aphidius dissolutus*, parasite of foxglove Aphid in Britain, 164.
- Aphids, and plant virus diseases, 4, 86, 87, 148, 156, 157, 162, 167, 171, 172, 173, 200, 204, 205, 206, 207, 229, 253, 254, 298, 300, 301, 312, 350, 381, 382, 419; ants associated with, 125, 164; natural enemies of, 4, 19, 147, 164, 229, 308, 317, 354, 381; tests of insecticides on, 120, 166, 167, 180, 190, 248, 277, 278, 392, 421; effect of insecticides on reproduction of, 256, 400; classification and new species of, 39, 164, 202, 205, 295.
- Aphis abbreviata* (see *A. rhamni*).
- Aphis apigraveolens*, transmitting virus disease of celery in California, 171.
- Aphis cognatella*, possibly identical with *A. euonymi*, 39.
- Aphis euonymi*, problem of food-plants and identity of, 39.
- Aphis fabae* (*rumicis*, auct.), in Australia, 159; in Britain, 4, 6, 39, 164, 190, 310; in Moravia, 101; in Switzerland, 147; on beans, 6, 39, 101, 147, 159, 164, 190, 310; on beet, 4, 6, 39, 147, 164; relation of, to virus diseases of beet and mangel, 4, 205; on other plants, 39; winter food-plants of, 39, 164; insects predacious on, 6, 147; tests of insecticides against, 159, 166, 190, 248, 310; classification of Aphids of group of, 39, 164.
- Aphis fabae armata*, bionomics of, in Britain, 164.
- Aphis ferruginea-striata*, experiments with virus diseases of celery and, in California, 171, 172; on carrot and dill in Hawaii, 66.
- Aphis frangulae*, auct. (see *A. gossypii*).
- Aphis gossypii*, in Argentina, 19; in Italy and Sicily, 419, 420; in Mauritius, 2; in Peru, 76; in Queensland, 274; in S. Rhodesia, 240; in U.S.A., 47, 111, 176, 181, 398, 404; in W. Indies, 342; on *Cordia interrupta*, 2; on cotton, 19, 47, 76, 111, 176, 181, 340, 398, 419; on cucurbits, 19, 274, 404; insects predacious on, 19, 76, 420; insecticides against, 47, 176, 181, 274, 398; arsenicals favouring infestation by, 47, 76, 176, 398; effect of DDT on infestation by, 47, 111, 398, 404.
- Aphis idaei*, transmitting virus disease of raspberry in France, 312.
- Aphis maidis*, on maize in Brazil, 167; natural enemies of, on cereals in Rumania, 148; relation of, to virus disease in cereals and sugar-cane, 148, 167.
- Aphis middletoni*, ant associated with, on squash in U.S.A., 125.
- Aphis mordwilкови*, considered a race of *A. fabae*, 39.
- Aphis padi*, L. (see *Anuraphis*).
- Aphis padi*, auct. (see *Rhopalosiphum prunifoliae*).
- Aphis papaveris* (see *A. fabae*).
- Aphis philadelphia*, considered a race of *A. fabae*, 39.
- Aphis pomi* (Green Apple Aphid), in France, 421; in Switzerland, 201; in U.S.A., 83, 401; tests of insecticides on, 201, 277, 278, 421; doubtful effect of DDT deposits on, 83.
- Aphis rhamni*, in Britain, 207; in Canada, 11, 12, 109; in Maine, 230, 253; on potato, 11, 12, 207, 230, 253; transmitting virus diseases of potato, 207, 230; bionomics of, 12, 230; traps for studying flights of, 109; measures against, 12, 230, 253.
- Aphis rumicis*, auct. (see *A. fabae*).
- Aphis sacchari*, on sugar-cane in Brazil, 167.
- Aphis saliceti*, on *Salix viminalis* in Czechoslovakia, 102.
- Aphis sambuci*, dust against, on elder in Britain, 310.
- Aphis spiraeicola*, tests of insecticides on, 120.
- Aphis, Apple-grain, 175; identity of, 295.
- Aphis, Cabbage (see *Brevicoryne brassicae*).
- Aphis, Cotton (see *Aphis gossypii*).
- Aphis, Green Apple (see *Aphis pomi*).



- Aphis*, Mealy Plum (see *Hyalopterus arundinis*).
- Aphis*, Pea (see *Macrosiphum onobrychis*).
- Aphis*, Pear Root (see *Eriosoma lanuginosum*).
- Aphis*, Potato (see *Macrosiphum solanifolii*).
- Aphis*, Shallot (see *Myzus ascalonicus*).
- Aphis*, Spiraea (see *Aphis spiraeicola*).
- Aphis*, Walnut (see *Chromaphis juglandicola*).
- Aphis*, Woolly Apple (see *Eriosoma lanigerum*).
- Aphodius* spp., measures against, on greenhouse tomatoes and mushrooms in Britain, **328**.
- Aphonus castaneus*, bionomics of, infesting turf in Connecticut, **360**.
- Aphorura*, on beet in Switzerland, **147**.
- Aphrophora salicis*, on willow in Czechoslovakia, **102**.
- Aphrophora saratogensis*, insecticides against, on *Pinus banksiana* in U.S.A., **48**.
- Aphycus flavus* (see *Metaphycus*).
- Aphytis chrysomphali*, parasite of *Aonidiella aurantii* in New South Wales, **6**.
- Aphytis fuscipennis*, parasite of *Chionaspis furfura* in New York, **199**.
- apigraveolens*, *Aphis*.
- Apion aestivum* (see *A. trifolii*).
- Apion apricans*, on clover in Moravia, **101**.
- Apion trifolii*, synonymy of, **424**.
- Aplomya* (see *Zenillia*).
- Apodanthera undulata*, *Cecidomyia citrulli* not found on, in Arizona, **408**.
- Apomecyna histrio*, bionomics and control of, on cucurbits in Queensland, **274**.
- Aporia crataegi*, on apple and cherry in Moravia, **101**.
- Appelia amygdali* (see *Anuraphis schwartzi*).
- Apple, *Cydia pomonella* on, in Algeria, **196**; fruit-flies on, in Argentina, **65**; pests of, in Australia, **6, 158, 159, 246, 317, 368, 369, 415**; pests of, in Britain, **26, 27, 94, 95, 189, 211, 295, 296**; pests of, in Canada, **13, 33, 97, 98, 185, 301, 336, 411**; pests of, in Chile, **7, 19, 20**; pests of, in Crimea, **313**; pests of, in Czechoslovakia, **100, 101, 102**; *Paramallocera ilinizae* in, in Ecuador, **18**; pests of, in France, **138, 195, 225, 313, 421**; pests of, in Italy, **201, 281, 282, 379, 380**; pests of, in New Zealand, **64**; pests of, in Palestine, **273**; pests of, in Switzerland, **70, 145, 146, 383**; pests of, in U.S.A., **80, 81, 82, 83, 84, 111, 131, 132, 178, 198, 199, 228, 257, 263, 264, 267, 295, 318-320, 321, 322, 334, 356, 357, 400, 401, 406, 407, 409**; effects of insecticide treatments on, **95, 189, 313, 319**.
- Apple (Fruit), restrictions on importation of, into Britain and Switzerland, **194, 201**; fumigation of, against *Quadraspidiotus perniciosus*, **201**; *Cydia molesta* reared on, **54**; tolerance for DDT residue on, in U.S.A., **110**; removal of arsenic residues from, **97**; juice of, as bait for moths, **195**.
- Apple Aphis, Green (see *Aphis pomi*).
- Apple Aphis, Woolly (see *Eriosoma lanigerum*).
- Apple Blossom Weevil (see *Anthonomus pomorum*).
- Apple Leafhopper, White (see *Typhlocyba pomaria*).
- Apple Maggot (see *Rhagoletis pomonella*).
- Apple Sawfly (see *Hoplocampa testudinea*).
- Apple Scab (see *Venturia inaequalis*).
- Apple-grain Aphis, **175**; identity of, **295**.
- apricans*, *Apion*.
- Apricot, *Cydia pomonella* on, in S. Africa, **142**; pests of, in Australia, **371, 415**; pests of, in Crimea, **314**; *C. pomonella* on, in France, **196**; *Rhopobota naevana* on, in Italy, **281**; *Enarmonia woerberiana* on, in Moravia, **101**; *Odontria zealandica* on, in New Zealand, **64**; pests of, in Switzerland, **145, 381**; Scolytid possibly introducing pathogenic organism into, **415**; not suitable food-plant for *Chloroclystis rectangulata*, **383**; insecticides and injury to, **70, 142**.
- Apricots (Dried) (see Fruit, Dried).
- Aprostocetus*, key to species of, of Ethiopian Region, **227**.
- APS-202, **412**.
- Aptesis*, parasite of *Bupalus piniarius* in Germany, **74**.
- Aptesis* (*Microcryptus*) *brachyptera*, parasite of *Pristiphora abietina* in Germany, **331**.
- Aptesis brumatae*, sp. n., parasite of *Oporophthera brumata* in Italy, **283**.
- arabidis*, *Asterolecanium*.
- Arachis hypogaea* (see Ground-nuts).
- Araccerus fasciculatus*, fumigation against, in stored cacao in Fernando Po, **38**.
- Araucaria cunninghami*, pests and disease of, in Queensland, **246, 247**.
- arboricola*, *Strigoderma*.
- Archips argyrospila* (see *Tortrix*).
- Archips fumiferana* (see *Harmologa*).
- Arctium*, Aphid on, **39**.
- areator*, Hemiteles.
- Areca catechu*, *Aonidiella inornata* on, in Hawaii, **323**.

- argentata*, *Thamnotettix*.  
 Argentina, cereal pests in, **19, 65, 413** ; forest pests in, **333, 334, 413** ; pests of fruit trees in, **65, 66, 170** ; miscellaneous pests in, **8, 65, 66, 414** ; *Schistocerca paranensis* in, **18, 170** ; insects and virus diseases of tobacco and beet in, **65, 426** ; beneficial insects and biological control in, **19, 65, 66, 334** ; *Metarrhizium anisopliae* infecting insects in, **18** ; book on economic entomology in, **170**.  
 Argentine Ant (see *Iridomyrmex humilis*).  
*argillacea*, Alabama.  
*Argyresthia conjugella* (on apple), in Moravia, **101** ; in Switzerland, **70, 146** ; on *Sorbus aucuparia*, **146** ; sprays against, **70**.  
*Argyresthia ephippella*, on apple and pear in Moravia, **101** ; sprays against, on cherry in Switzerland, **70**.  
*Argyresthia illuminatella*, on *Abies alba* in Czechoslovakia, **101**.  
*Argyresthia pruniella*, auct. (see *A. ephippella*).  
*Argyria sticticraspis* (see *Proceras*).  
*Argyroploce leucotreta*, on cotton in Somalia, **226**.  
*argyrospila*, *Tortrix* (*Archips*).  
*Arilus cristatus*, predacious on *Popillia japonica* in U.S.A., **230**.  
 Arizona, pests of beans in, **167, 171** ; Pentatomids on beet in, **398** ; cotton pests in, **46, 180, 396** ; natural enemies of cotton insects in, **396** ; miscellaneous pests in, **167, 168, 391, 408** ; *Cactobrosis fernaldialis* and bacterial disease of *Carnegiea gigantea* in, **168**.  
 Arkansas, miscellaneous pests in, **173, 181, 334, 402**.  
*Armadillidium*, on cotton in Italy and Sicily, **419**.  
*armata*, *Aphis* (*Doralis*) *fabae*.  
*armigera*, *Heliothis*.  
*armillata*, *Angitia*.  
 Army Cutworm (see *Chorizagrotis auxiliaris*).  
 Armyworm, Bertha (see *Barathra configurata*).  
 Armyworm, Fall (see *Laphygma frugiperda*).  
 Aroclor 1242, **85**.  
*Arrhenatherum avenaceum*, *Domomyza ambigua* on, in Scotland, **188**.  
 Arsenic, early use of, in bait for ants, **267** ; and sulphur, for fumigating ants' nests, **413** ; in bait-spray for locusts, **170** ; uses of, against termites, **162, 314** ; problems of residue of, on apples, **97, 257**.  
 Artichoke (*Cynara*), Hemiptera on, in Chile, **355**.
- Artichoke, Jerusalem (see *Helianthus tuberosus*).  
*articulatus*, *Selenaspidus*.  
*arundinis*, *Hyalopterus*.  
 Asafoetida, uses of, against stored-product pests, **16, 17**.  
*ascalonicus*, *Myzus*.  
*Ascia monuste*, on cabbage in Brazil, **108** ; in St. Lucia, **93** ; DDT against, **93, 108**.  
*Ascogaster quadridentata* (parasitising *Cydia nigricana*), introduction and natural spread of, into Washington from British Columbia, **297**.  
 Ash (*Fraxinus* spp.), pests of, in U.S.A., **50, 391** ; not attacked by *Tortrix viridana*, **331**.  
 Ash Lace Bug (see *Leptopypha minor*).  
 Ashes, mixed with stored products against insect pests, **16, 17**. (See Wood Ash.)  
*ashmeadi*, *Telenomus* (see *T. mesillae*).  
*asparagi*, *Crioceris*.  
 Asparagine, *Hyponomeuta* attracted to bait containing, **145**.  
 Asparagus, *Crioceris asparagi* on, in Moravia, **101**.  
 Asparagus Beetle (see *Crioceris asparagi*).  
 Asparagus Beetle, Spotted (see *Crioceris duodecimpunctata*).  
 Aspen, American (see *Populus tremuloides*).  
 Asphalt Paint, protecting *Cornus* against *Aegeria scitula*, **360** ; ant removing, **360**.  
*Aspidiotiphagus australiensis*, parasite of *Aonidiella aurantii* in New South Wales, **6**.  
*Aspidiotus*, supplement to revision of, **323**.  
*Aspidiotus destructor*, spray against, on palms in Brazil, **107** ; possible vector of virus diseases of cacao in W. Indies, **89**.  
*Aspidiotus hederae*, on avocado in Chile, **354**.  
*Aspidiotus perniciosus* (see *Quadraspidotus*).  
*Aspidiotus rapax* (see *Hemiberlesia*).  
*assimilis*, *Centothorrhynchus*.  
*Asterolecanium arabidis*, outbreak of, in California, **325** ; food-plants and distribution of, **325**.  
*Asterolecanium pustulans*, spray against, on cacao in W. Indies, **89**.  
*asynamorus*, *Tachycines*.  
*Asynapta furcifer*, *Lasioptera berlesiana* confused with, in Mediterranean countries, **286**.  
*atalanta*, *Vanessa*.  
*atalantae*, *Theronia*.  
*Atanus exitiosus*, bionomics and relation of, to virus disease of beet in Argentina, **426**.

- ater*, *Dermestes*; *Hylastes*.  
*aterrima*, *Phymatocera*.  
*athasaria*, *Lambdaia*.  
*Atherigona quadripunctata*, parasite of, on sorghum in Italy, 378.  
*Athesapeuta cyperi*, introduced but not liberated against *Cyperus rotundus* in Australia, 220.  
*Athous*, predacious on *Operophtera brumata* in Italy, 284.  
*atlanticus*, *Tetranychus*.  
*atomaria*, *Epicauta*.  
*atratus*, *Taeniothrips*.  
*Atrichonotus taeniatulus* (see *Pantomorus*).  
*atricornis*, *Phytomyza*.  
*atrofasciatus*, *Andrector*.  
*Atta*, campaigns against, in Brazil and Guatemala, 108, 413.  
*Atta sexdens rubropilosa*, *Sesamum orientale* not affecting, in Brazil, 76.  
*Attagenus piceus*, damage to nylon by, 45.  
*Aulacophora abdominalis*, bionomics and control of, on cucurbits in Queensland, 243, 274.  
*Aulacophora foveicollis*, bionomics and control of, on melon in Italy, 285.  
*Aulacophora hilaris*, bionomics and control of, on cucurbits in Queensland, 243, 274.  
*aurantii*, *Aonidiella*; *Toxoptera*.  
*aurantipictus*, *Prospheres*.  
*auratus*, *Dirhinus* (see *D. excavatus*).  
*aureliana*, *Margarodes*.  
*auricularia*, *Forficula*.  
*Austracris guttulosa*, plants damaged by, in Australia, 222, 245; bionomics of, 222.  
*australasiae*, *Orcus*.  
 Australia, *Chortoicetes terminifera* in, 133-135, 162; miscellaneous pests in, 159-162; pests of potato in, 156, 159, 160, 161, 162, 315, 316; insects and virus disease of potato and tobacco in, 156, 157, 162; pests of stored cereals in, 161, 168, 191, 192, 245, 302, 414; *Tyrophagus putrescentiae* in fungus cultures in, 193; termites in, 162, 314; parasites and biological control of insects in, 162; biological control of noxious plants in, 161, 219, 220; insects imported into California from, against *Hypericum*, 161. (See also under the various States.)  
 Australia, South, *Dacus ferrugineus tryoni* in, 415; locusts in, 133, 157; miscellaneous pests in, 132, 158; parasites and biological control of insects in, 157, 162; biological control of plants in, 161, 415.  
 Australia, Western, 158; grasshoppers in, 135, 222; pests of stored grain in, 192, 303; *Microphanurus basalis* introduced into Queensland from, 243.  
*australiensis*, *Aspidiotiphagus*.  
*australis*, *Gryllotalpa*; *Harpobittacus*; *Leptoglossus*; *Monolepta*; *Phyllotreta*.  
 Austria, *Leptinotarsa decemlineata* in, 380; *Quadraspidiotus perniciosus* on fruit trees in, 201; *Tortrix* spp. on forest trees in, 73, 331; beneficial insects in, 331; parasites of *Apanteles glomeratus* in, 352.  
*Austrodacus* (see *Dacus*).  
*Austroicetes cruciata*, in Australia, 157, 222; parasite of, 157.  
*Autographa brassicae* (see *Plusia*).  
*auxiliaris*, *Chorizagrotis*.  
*avellanae*, *Phytoptus* (*Eriophyes*).  
*Avibrissina brevipalpis*, parasite of *Pyronota* spp. in New Zealand, 68.  
 Avocado, *Mallodon downesi* on, in W. Africa, 36; pests of, in Argentina, 65, 66; pests of, in Chile, 354.  
*ayerzai*, *Microplitis*.  
 Azalea, thrips on, in greenhouses in Rumania, 286.  
*azami*, *Orphanina scutata*.  
 Azobenzene, uses and effectiveness of, against insects and mites, 179, 180, 189, 190, 231; and injury to plants, 180, 189.  
*Azteca paraensis* var. *bondari*, campaign against, injuring cacao in Brazil, 142.

## B.

- baccarum*, *Dolycoris*.  
*baccharices*, *Aceria*.  
*Baccharis*, new mite on, in California, 325.  
*bacchus*, *Rhynchites*.  
*Bacillus lentimorbus*, utilisation of against *Popillia japonica* in U.S.A., 51.  
*Bacillus popilliae*, utilisation of, against *Popillia japonica* in U.S.A., 51, 261, 337, 338, 356, 357, 389, 390; studies on transmission and pathogenicity of, 261, 356, 389, 390. (See *Milky Disease*.)  
*Bacillus tracheiphilus*, *Diabrotica melanocephala* transmitting, to cucumber in New York, 404.  
 Bacteria, causing heating of stored cereals, 384; benzene hexachloride protecting cultures of, from mites, 194; (infecting insects), 73, 129, 130, 246, 389; utilisation of, 51, 200, 261, 337, 338, 356, 389; (infecting plants), relation of insects to, 168, 246, 404.



- Bacterial Wilt of Cucurbits (see *Bacillus tracheiphilus*).
- Bactra truculenta* (attacking *Cyperus rotundus*), not liberated in Australia, 220 ; parasite of, in Hawaii, 220.
- baetica*, *Ocnogyna*.
- Bahamas, *Aonidiella orientalis* on coconut in, 323.
- Bait-spray, for Diptera, 25, 26, 67 ; for locusts, 170 ; for thrips, 65, 112, 370.
- Baits, for ants, 2, 267, 371 ; for Coleoptera, 119, 146, 260, 261 ; for fruit-flies, 67, 150, 151 ; for locusts and grasshoppers, 15, 36, 137, 163, 164, 216, 217, 306, 367, 371 ; for other Orthoptera, 347 ; for moths, 144, 246, 328, 402, 403, 407 ; for Lepidopterous larvae, 42, 97, 245, 271 ; for *Thermobia domestica*, 50 ; for *Tipula paludosa*, 188 ; formulae for, 2, 36, 42, 43, 50, 119, 143, 144, 151, 217, 271, 371, 403, 408 ; suggested distribution of, from aircraft, 164.
- Bajra (see *Pennisetum typhoideum*).
- bajulus*, *Hylotrupes*.
- Balaninus* (see *Curculio*).
- Balsam Fir (see *Abies balsamea*).
- Bamboo (culms), pests in, and their control in India, 90-92 ; starch content of species of, in relation to pests, 90, 91.
- Bambusa* spp. (see Bamboo).
- Banana, pests of, in Australia, 222, 245, 276 ; *Cosmopolites sordidus* on, in Tahiti, 43.
- Banana Borer (see *Cosmopolites sordidus*).
- Bands, against ants, 127 ; against *Cydia pomonella*, 82, 131, 138, 142, 196 ; against *Rhynchites bacchus*, 138 ; treatment of, 42, 143, 196. (See Adhesives.)
- Baobab (see *Adansonia digitata*).
- Barathra configurata*, outbreak of, on flax in Saskatchewan, 13.
- Barbados, miscellaneous pests in, 22, 23, 130 ; beneficial insects in, 22, 23.
- barbatum*, *Stromatium*.
- barbivostris*, *Rhina*.
- Barium Fluosilicate, dusting with, 154, 279, 297 ; spraying with, 107, 154, 372 ; protecting seed potatoes from *Gnorimoschema operculella*, 289 ; linseed-oil as adhesive for, 107 ; formulae containing, 154, 279, 289, 372.
- Barium Polysulphides, unsatisfactory against *Paratetranychus pilosus*, 103.
- Bark-beetles, relation of, to *Ceratostomella*, 40, 356 ; pathogen possibly associated with, in fruit trees, 415.
- Barley, *Epilachna* on, in Abyssinia, 377, 378 ; pests of, in Britain, 188 ; varieties of, in relation to *Cephus cinctus* in Canada, 364 ; pests of, in Czechoslovakia, 101 ; *Apamea secalis* on, in Italy, 378 ; *Oxycanus cervinatus* on, in New Zealand, 62 ; *Aphis maidis* on, in Rumania, 148 ; *Silpha undata* on, in Switzerland, 146 ; *Mayetiola destructor* on, in U.S.A., 127 ; Aphid killed by selenium taken up by, 175 ; effects of insecticides on, 115, 418.
- Barley (Stored), insects in, and their control, 69, 178, 386, 387.
- Barriers, against *Blissus leucopterus*, 127, 128 ; against locusts, 307.
- Baryconus*, erroneously recorded as parasite of *Selenothrips rubrocinctus* in Bahía, 333.
- Baryopadus squalidus*, measures against, on apple and *Eucalyptus* in New South Wales, 6.
- basalis*, *Microphanurus*.
- Basic Slag, dusting with, against *Phyllotreta* on crucifer seedlings, 303 ; as soil dressing for grass damaged by *Anomala horticola*, 166.
- Bassus* (see *Agathis*).
- batesi*, *Othnonius*.
- Bats, possibly destroying *Tortrix murinana*, 73.
- Bean Beetle, Mexican (see *Epilachna varivestis*).
- Beans, pests of, in Australia, 159, 161, 242, 243, 275 ; pests of, in Britain, 6, 189 ; Coleoptera on, in Chile, 8 ; *Anychus latus* on, in Eritrea, 287 ; *Etiella zinckenella* on, in France, 269, 270, 279 ; *Andrector atrofasciatus* on, in Guatemala, 171 ; *Trialeurodes vaporariorum* on, in Hawaii, 67 ; *Tetranychus telarius* on, in Italy, 287 ; *Agromyza phaseoli* on, in Mauritius, 1 ; *Bruchus obtectus* on, in New Zealand, 419 ; thrips on, in Peru, 76 ; *Tetranychus cucurbitae* on, in Punjab, 31 ; *Empoasca lybica* on, in Sudan, 293 ; pests of, in Switzerland, 147, 148 ; pests of, in U.S.A., 13, 121, 122, 123, 167, 171, 247, 248, 250, 359, 396 ; as food for adults of *Epitrix tuberis*, 44, 335 ; varieties of, in relation to pests and virus diseases, 1, 296, 419 ; predacious insects trapped on leaves of, 147, 148 ; leaf areas of, in relation to insecticides, 124 ; introduction of chemicals into, against pests, 121, 175, 359 ; effects of insecticide treatments on, 121, 159, 189, 247, 248.
- Beans (Stored), Bruchids in, 8, 35, 245.
- Beans, Broad or Tick (see Broad Beans).

Beans, Lima (see Lima Beans).

Beans, Soy (see Soy Beans).

*Beauveria globulifera*, infesting Coleoptera in U.S.A., 35, 405; attempted use of, against *Blissus leucopterus*, 51.

*beckii*, *Lepidosaphes*.

*Bedellia orchilella*, sprays against, on sweet potato in Hawaii, 67.

Beech, *Cryptococcus fagi* on, in Canada, 9, 302; observations on *Lymantria monacha* and, in East Prussia, 235.

Bees, Bumble (see *Bombus*).

Bees, Carpenter (see *Xylocopa*).

Bees, Honey, natural enemies and disease of, 18, 51, 392, 420; and pollination of lucerne, 174, 363; pest control in relation to flowers visited by, 380; insecticides in relation to, 60, 74, 109, 110, 111, 159, 177, 219, 240, 251, 281, 297, 310, 381; experiments with repellents against, in insecticides, 60, 297; DDT eradicating undesirable colonies of, 55, 93.

Beet, pests of, in Argentina, 426; pests of, in Britain, 4, 6, 39, 164, 188; *Mamestra brassicae* on, in Bulgaria, 385; *Pegomyia hyoscyami* on, in Czechoslovakia, 100, 101; pests of, in Denmark, 348; *Orphanina scutata* on, in France, 137; pests of, in Hawaii, 7, 66; Aphids on, in New Zealand, 419; *Hymenia recurvalis* on, in Queensland, 242; pests of, in Switzerland, 146, 147, 381; Pentatomids on, in U.S.A., 398; *Lixus subtilis* on, in Uzbekistan, 347; place of, in crop rotations against *Limoniis californicus*, 116; insects and virus diseases of, 4, 204, 205, 206, 419, 426; not attacked by *Aphis fabae armata*, 164; dinitro-o-cresol causing injury to, 241.

Beet Leafhopper (see *Eutettix tenellus*).

Beet Webworms (see *Hymenia recurvalis* and *Loxostege sticticalis*).

*Belonuchus decipiens*, predacious on fruit-flies in Brazil, 285.

*Belonuchus formosus* (see *B. rufipennis*).

*Belonuchus latro*, predacious on Dipterous larvae in Brazil, 106.

*Belonuchus mexicanus*, predacious on fruit-flies in Brazil, 285.

*Belonuchus rufipennis*, predacious on noxious insects in Brazil, 106, 285; introduced into Italy against fruit-flies, 285.

*Bembecia marginata* (see *Pennisetia*).

*Bemisia citricola*, sp. n., on *Citrus* in Spain, 96.

*Bemisia tabaci*, on cotton in Italy and Sicily, 419; food-plants and natural enemies of, in Morocco, 427.

*bengalensis*, *Bostrychopsis*.

Bent Grass (see *Agrostis*).

Bentonite, nicotine fixed on, 33, 81, 82, 97, 98, 122, 318, 319, 320; other uses of, in sprays and dusts, 82, 180, 247, 361, 395, 407.

Benzene, as solvent for DDT, 85, 211, 254, 391; emulsified solutions of DDT in, 166, 257, 318, 407; increasing efficiency of DDT dusts, 254.

Benzene Hexachloride, 308; against Aphids, 64, 162, 176, 184, 217, 254, 263, 421; against other Hemiptera, 176, 180, 181, 184, 218, 292; against Coleoptera, 6, 64, 175, 176, 183, 211, 218, 272, 292, 303, 304, 367, 372, 385, 420; against Diptera, 96, 167; against grasshoppers, 120, 216, 217, 367, 416, 417; against Lepidoptera, 64, 161, 162, 176, 183, 184, 263, 369; against *Halotydeus destructor*, 158; effect of, on Tetranychid mites, 64, 185, 370; protecting fungus cultures from Tyroglyphid, 193, 194; ineffective against *Eutermes exitiosus*, 162; against thrips, 185, 364; killing insects within plant tissues, 385; toxicity of deposits of, to insects and ticks, 167, 292; duration of effectiveness of, 167, 180, 184, 217, 218, 367, 384; fumigant action of, 184, 185, 421; effect of wind on toxicity of, 185; and injury to plants, 176, 181, 373; in baits, 216, 217, 367; in dusts, 64, 161, 175, 176, 180, 181, 184, 211, 217, 218, 254, 263, 303, 304, 367, 384, 385, 420, 421; carriers for, 64, 175, 180, 181, 184, 211, 217; in sprays, 6, 64, 161, 162, 182-185, 364, 367, 384, 385, 421; soil treatment with, 6, 218, 272, 367, 372; applied by aircraft, 416, 417; formulae containing, 64, 120, 158, 175, 176, 180, 181, 182-185, 211, 217, 218, 254, 263, 364, 367, 369, 373, 416, 417, 420, 421; and DDT, 217, 218; compatibility of, with fungicides, 184; with superphosphate, 158, 218; wetting agents and powders used with, for sprays, 64, 182, 183; solutions of, 193, 416, 417; emulsified solutions of, 120, 161, 183, 369, 373, 421; refined form of, 161, 162, 182, 183, 184, 185;  $\gamma$  isomer of, 6, 64, 119, 120, 175, 176, 180, 181, 182, 183, 184, 217, 218, 263, 292, 303, 367, 369, 373, 416, 421; tests of insecticidal action of other isomers of, 420; review of data on, 304; derivatives of (see Polychlorocyclane Sulphides).

Benzoic Acid, action of, in cockroaches, 57.

- Berar, *Indarbela quadrinotata* on *Citrus* in, 373.  
*bergii*, *Neomaskellia*.  
*berlesiana*, *Lasioptera* (*Prolasioptera*).  
 Bertha Armyworm (see *Barathra configurata*).  
*betae*, *Pegomyia hyoscyami*.  
 Betaine Chloride, ineffective as bait for *Rhagoletis cerasi*, 144.  
*Betula* (see *Birch*).  
*Betula lutea*, *Agrilus anxius* on, in Canada, 99.  
*betulae*, auct., *Epidiaspis* (see *E. leperii*).  
*bibax*, *Biprorulus*.  
*Bibio marci*, on cabbage in Bohemia, 100.  
*biclavatus*, *Calocoris*.  
*biclavus*, *Howardia*.  
*bicolor*, *Stauroderus* (see *Chorthippus brunneus*).  
*bicolorinus*, *Hemiteles*.  
*bidens*, *Picromerus*.  
*bidentatus*, *Leptoglossus*.  
*bifasciata*, *Acrocercops*; *Comperiella*.  
*bifidialis*, *Loxostege*.  
*biguttatum*, *Anomalon*.  
 Bihar, Aleurodids on *Citrus*, etc., in, 186, 187.  
*bimaculata*, *Oberea*.  
*bimaculatus*, *Tetranychus*.  
*binotalis*, *Crocidolomia*.  
 Biological Control, discussion of importance of diseases of insects in, 51; of noxious plants, 43, 161, 220, 247.  
*bipartitus*, *Scelio*.  
*bipлага*, *Earias*.  
*Biprorulus bibax*, sprays against, on *Citrus* in Queensland, 245, 246.  
*bipunctalis*, *Psara*.  
*bipunctata*, *Adalia*.  
 Birch, pests of, in Canada, 9, 99, 269, 302.  
 Birch Borer, Bronze (see *Agrilus anxius*).  
 Birds, destroying noxious insects, 20, 24, 28, 63, 73, 89, 125, 165, 166, 171, 237, 278, 283, 348, 352, 385, 400, 411; encouragement of, against insect pests, 237, 309; possible spread of *Chionaspis furfura* by, 198; poisoning of, by insecticides, 177, 241.  
*biscutum*, *Eupala*.  
*biselliella*, *Tineola*.  
*bituberculata*, *Pterocomma*.  
*divulnerus*, *Chilocorus* (see *C. stigma*).  
*Bixadus sierricola*, bionomics of, on coffee in W. Africa, 36, 37.  
 Black Leaf 155, 80, 81.  
 Black Leaf Dry Concentrate, 257.  
 Black-headed Fir Sawfly (see *Neodiprion abietis*).  
*Blaesoxipha* (see *Sarcophaga*).  
*Blaesoxiphotheca* (see *Sarcophaga*).  
*blanda*, *Terias* (*Eurema*).  
*Blastodacna* (see *Chrysoclista*).  
*Blatta orientalis*, hardening of ootheca of, 202.  
*Blattella germanica*, effects of temperature on development of, 343.  
*Blepharomyia amplicornis*, parasite of *Operophtera brumata* in Italy, 284.  
*Blissus hirtus*, insecticides against, damaging turf in New Jersey, 394.  
*Blissus leucopterus*, in Peru, 76; in U.S.A., 84, 127, 364; on cereals, 76, 84, 127, 174; damaging lawns, 364; favoured by lack of nitrogen in plants, 174; attempted use of fungus against, 51; barriers and dusts against, 127, 364.  
*Blitophaga* (see *Silpha*).  
*Blondelia nigripes*, parasite of *Bupalus piniarius* in Germany, 74.  
 Blood Albumin, in bait for *Rhagoletis cerasi*, 144; in DDT sprays, 111, 114; as emulsifier for oils, 49.  
 Blowfly (see *Lucilia sericata*).  
 Blue Mould of Tobacco (see *Peronospora tabacina*).  
 Blueberry, *Eufidonia discospilata* on, in Canada, 269; pests of, in U.S.A., 181, 393; scorched by DN-111, 181.  
 Blueberry Bud Mite (see *Eriophyes vaccinii*).  
 Bluebird, Mountain (see *Sialia currucoides*).  
*blunckii*, *Habrocytus*.  
 Bo 409, 425.  
 Boars, Wild, destroying insects, 28, 74.  
 Bolivia, *Coccinella ancoralis* in, 19.  
*bolliana*, *Gretchena*.  
 Bollworms (see *Cotton* and *Flax* Bollworms).  
 Bombay, predacious Coccinellids in, 4; list of crop pests in, 376.  
*Bombotelia jocosatrix*, bionomics and control of, on mango in Queensland, 221.  
*Bombus*, pollination of lucerne by, in U.S.A., 174, 363.  
*Bombycia viminalis*, on *Salix viminalis* in Czechoslovakia, 102.  
*Bombyx mori*, suggested use of, for feeding *Podisus nigrolimbatus*, 7; disease of, 51.  
*bondari*, *Azteca paraensis*.  
 Bordeaux Mixture, against *Aphrophora saratogensis*, 48; against *Epitrix cucumeris*, 359; against Jassids, 293, 358; ineffective as repellent against *Lygus fraudulentus*, 355; ineffective against *Paratetranychus pilosus*, 103; ineffective against *Pyrausta nubilalis*, 359; against *Selenothrips rubrocinctus*, 89; formulae for, 61, 81, 83, 96, 118, 196, 358, 359; formulae containing, 44, 61, 81, 82, 83, 96, 118,



- 196 ; and arsenicals, 44, 61, 81, 82, 138, 196, 278, 279, 280 ; reducing efficiency of lead arsenate, 279 ; effect of, on toxicity of cryolite, 118, 119, 279 ; and DDT, 27, 44, 81, 82, 83, 253, 254, 264, 306, 318, 319 ; as emulsifier for DDT solution, 254 ; effects of HCN on peach sprayed with, 290, 291 ; and nicotine, 96, 196 ; and oils, 81, 82, 83, 196 ; type of tar-distillate emulsion compatible with 70, 138 ; spreader increasing injury to apple by, 96.
- bovelli*, *Scaptomyza*.
- Boric Acid, against *Dermestes* in rabbit skins, 68 ; treatment of timber with, against *Lyctus*, 247, 305 ; not protecting bamboo culms against insects, 92.
- Borolia venalba*, bionomics and control of, on rice in Ceylon, 14.
- bosqi*, *Lepidaphycus* (see *Homalotylus flaminus*).
- bosquella*, *Stegasta*.
- Bostrychopsis* spp., measures against, in stored bamboo in India, 90.
- Bostrychulus scabrata* (see *Micrapate*).
- Bothynoderes* (see *Cleonus*).
- botrana*, *Polychrosis*.
- Botrytis*, infesting *Operophtera brumata* in Italy, 283.
- boucheanus*, *Dibrachys* (see *D. cavus*).
- boureyi*, *Pseudischnaspis*.
- Box (see *Buxus*).
- Boxthorn (see *Lycium*).
- Boxwood Leafminer (see *Monarthropalpus buxi*).
- Boxwood Psyllid (see *Psylla buxi*).
- Brachymeria inornata*, sp. n., parasite of *Platyedra gossypiella* in Somalia, 226, 227.
- Brachymeria megaspila*, bionomics of, in Ceylon, 3.
- Brachymeria ovata*, parasite of *Alabama argillacea* in Argentina, 65.
- brachyptera*, *Aptesis* (*Microcryptus*).
- Bracon abscissor*, parasite of *Apamea secalis* in Italy, 378.
- Bracon cephi*, parasite of *Cephus cinctus* in Canada, 365.
- Bracon gelechia* (parasite of *Gnorimoschema operculella*), introduction of, into Australia, 162 ; introduced into Chile, 20.
- Bracon hebetor* (*juglandis*), effects of temperature on development of, 343.
- Bracon kirkpatricki*, parasite of *Platyedra gossypiella* in Somalia, 226.
- Bracon mellitor*, utilisation of, against *Platyedra gossypiella* in Mexico, 388.
- Bracon-vulgaris* (see *Cremnops*).
- Braconyl, 313.
- Bran, in baits, 2, 15, 36, 42, 137, 146, 163, 188, 217, 245, 271, 347, 367, 371 ; infusion of, as bait for *Rhagoletis cerasi*, 143.
- brasiliensis*, *Eutinobothrus* (*Gasterocercodes*) ; *Theresia* (*Paratheresia*).
- Brassica campestris*, pests on, in U.S.A., 230, 410.
- brassicae*, *Brevicoryne* ; *Hylemyia* (*Chortophila*) ; *Mamestra* ; *Pieris* (*Mancipium*) ; *Plusia* (*Autographa*).
- brassicariae*, *Pimpla* (see *Apechthis compunctor*).
- Brassolis sophorae*, measures against, on palms in Brazil, 106.
- bratleyi*, *Frankliniella*.
- Brazil, injurious ants in, 76, 108, 142 ; pests of cacao in, 142, 333 ; miscellaneous pests in, 105-108, 323 ; *Schistocerca paranensis* in, 170 ; sugarcane pests in, 85, 167, 169 ; insects and virus diseases of plants in, 86, 167 ; beneficial insects in, 19, 77, 86, 105, 106, 169, 185, 333 ; parasites of beneficial insects in, 77, 169 ; Coleoptera imported into Canada in cottonseed meal from, 30 ; *Belonuchus rufipennis* introduced into Italy from, 285.
- Bread-crumbs, in bait for *Tachycines asynamoros*, 347.
- Brenthia leptocosma*, on *Cordia interrupta* in Mauritius, 2.
- Brevicoccus*, gen. n., 376.
- brevicollis*, *Heteronyx*.
- Brevicoryne brassicae* (on crucifers), in Australia, 159, 162, 217, 242 ; in Britain, 132, 310 ; in Canada, 34, 97 ; in France, 421 ; in U.S.A., 263, 299 ; distribution of, by air currents, 132 ; uses and comparisons of insecticides against, 34, 159, 162, 217, 242, 263, 299, 310, 421.
- brevipalpis*, *Avibrissina*.
- brevipes*, *Pseudococcus*.
- brevis*, *Dinoderus* ; *Hoplocampa* ; *Kaloterme* (*Cryptotermes*) ; *Leptocryptus* ; *Stylocryptus*.
- Brinjal (see Egg-plant).
- Britain, cereal pests in, 5, 164, 188, 214 ; forest pests in, 189, 222, 223, 308, 309 ; grass pests in, 165, 188, 223 ; pests of greenhouse and ornamental plants in, 69, 189, 205, 270, 310, 325-328, 424 ; miscellaneous pests in, 5 ; orchard pests in, 26, 27, 94, 189, 190, 211, 270 ; Aphids on strawberry in, 188, 205, 207 ; pests of stored products in, 89, 209, 210, 308 ; pests of vegetable and root crops in, 4, 5, 6, 24, 25, 26, 39, 164, 188, 189, 190, 205, 206, 207, 208, 213, 214, 270, 303, 309, 310, 325-328 ; records

- of *Leptinotarsa decemlineata* in, 310 ; wireworms in, 5, 24 ; Aphids and virus diseases of plants in, 4, 188, 206, 207 ; black Aphids of, 39, 164 ; beneficial insects in, 6, 164, 165, 188, 213, 214, 308, 309, 310, 326, 328 ; predacious mite in, 209, 210 ; books on pests in, 270, 308 ; list of popular names of insects in, 194 ; plant quarantine legislation in, 194.
- British Columbia, orchard pests in, 13, 33, 34, 98, 297 ; miscellaneous pests in, 34, 59, 322 ; pests of vegetable and root crops in, 13, 34, 43, 44, 59, 97, 365 ; beneficial insects in, 59, 60 ; spread and introduction of parasites of *Cydia nigricana* into Washington from, 297.
- Broad Beans (*Vicia faba*), pests of, in Britain, 39, 164, 190, 310 ; *Aphis fabae* on, in Czechoslovakia, 101 ; pests of, in Denmark, 348 ; *Otiorrhynchus ligustici* on, in France, 137 ; Agromyzid attacking *Orobanche* on, in Portugal, 333 ; not attacked by *Aphis fabae armata*, 164.
- Broccoli, *Contarinia nasturtii* on, in Britain, 209 ; *Ceuthorrhynchus assimilis* on, in Br. Columbia, 34.
- Broom Corn, fumigation of, against *Pyrausta nubilalis*, 268.
- Bruchophagus gibbus* (on lucerne), in Kansas, 363 ; bionomics and control of, in Queensland, 272.
- Bruchus chinensis*, measures against, in stored pulses in Mysore, 16, 17.
- Bruchus maculatus*, fumigation of imported chick peas against, in Canada, 30.
- Bruchus obreptus*, on cowpeas in Chile, 8.
- Bruchus obtectus*, on beans in Chile and New Zealand, 8, 419 ; dusts against, in stored beans in New South Wales, 35 ; varieties of beans resistant to, 419 ; technique of testing HCN on, 403.
- Bruchus pisorum* (on peas), in Czechoslovakia, 101 ; in U.S.A., 230, 232, 268 ; dusts against, 230 ; fumigation of stored peas against, 268.
- Brucine, effect of, on termites, 375.
- brumata*, *Operophtera* (*Cheimatobia*).
- brumatae*, *Aptesis* (*Microcryptus*).
- Brunus* spp., predacious on Aleoirdids in Punjab, 187.
- brunnea*, *Coraliomela* ; *Serica*.
- brunneri*, *Ocnorodes*.
- brunneus*, *Chorthippus* ; *Lyctus*.
- Brussels Sprouts, pests of, in Britain, 5, 309, 310.
- Bryobia praetiosa*, in Australia, 246, 369, 370 ; in New Zealand, 64 ; in Nova Scotia, 411 ; on almond, 111 ; on apple, 64, 246, 369, 370, 411 ; on pear, 369 ; in houses, 361 ; new mite predacious on, 411 ; measures against, 361, 370 ; insecticides increasing infestation by, 64, 111, 246, 369, 370.
- Bryocoropsis laticollis*, parasite of, on cacao in Gold Coast, 87.
- Bryonia laciniata*, *Tiracola plagia* on, in Queensland, 245.
- Bucculatrix canadensisella*, on birch in Nova Scotia, 302.
- Bucculatrix gossypiella*, on cotton in Peru, 76.
- Bucculatrix thurberiella* (on cotton), in Peru, 76 ; parasites of, in U.S.A., 397.
- bucephala*, *Phalera*.
- Budmoth, Eye-spotted (see *Spilonota ocellana*).
- Buffalo Bur (see *Solanum rostratum*).
- Bufo marinus*, destroying *Rhabdoscelus obscurus* in Queensland, 29 ; establishment and food of, in Solomon Is., 43.
- Building Timbers, Coleoptera in, 2, 267, 294, 350, 354 ; termites in, 2, 9, 314, 399 ; *Macremphytus* larvae burrowing in, 406.
- Bulgaria, *Mamestra brassicae* and its parasites in, 385.
- Bulldog Ant (see *Myrmecia gulosa*).
- Bumble Bees (see *Bombus*).
- Bunaea alcinoë*, bionomics and control of, on *Cananga odorata* in Fernando Po, 37, 38.
- Bupalus piniarius*, natural enemies of, on pines in Germany, 73, 74.
- Bur Clover (see *Medicago hispida*).
- Burma, book on insect pests in, 227.
- burneistevi*, *Ligyris*.
- Butyl Carbital Thiocyanates, 51. (See Thiocyanates.)
- Butyl Phthalate, as mutual solvent for derris extractives with oils, 49.
- Butylbenzamide, of little value as a synergist for pyrethrum marc, 123.
- 2-(4-tert.-Butylphenoxy) Ethanol, unsatisfactory as mutual solvent for derris extractives with oils, 49.
- buxi*, *Monarthropalpus* ; *Psylla* (*Psyllia*).
- Buxus*, pests of, in U.S.A., 263.
- Byturus rubi* (*unicolor*, auct.), rotenone insecticides against, on raspberry in New York, 140.

## C.

- Cabbage, pests of, in Australia, 159, 160, 162, 216, 217, 242 ; *Ascia monuste* on, in Brazil, 108 ; pests of, in Britain, 5, 165, 206, 208, 310 ; *Mamestra brassicae* on, in Bulgaria, 385 ; pests of, in Canada, 34, 97 ;

- pests of, in Czechoslovakia, 100 ; mechanism of injury to, by *Ceuthorrhynchus pleurostigma* in France, 423 ; pests of, in Hawaii, 67 ; pests of, in India, 4, 31 ; *Tetranychus telarius* on, in Italy, 287 ; pests of, in New Zealand, 14, 64 ; *Hellula undalis* on, in Peru, 76 ; *Ceuthorrhynchus* spp. on, in Switzerland, 385 ; pests of, in U.S.A., 199, 263, 299 ; not injured by DDT, 93.
- Cabbage Aphid (see *Brevicoryne brassicae*).
- Cabbage Looper (see *Plusia brassicae*).
- Cabbage Moth (see *Mamestra brassicae*).
- Cacao, pests and virus disease of, in W. Africa, 36, 37, 87, 88, 89, 90 ; pests of, in Brazil, 142, 333 ; new Coccid on, in Ecuador, 376 ; pests and diseases of, in Trinidad and Tobago, 88, 89, 376 ; clone of, resistant to Mirids, 87 ; (stored), pests in, and their control, 38, 88, 89 ; absorption of fumigants by, 38.
- Cacoecia* (see *Tortrix*).
- Cactobrosis fernaldialis*, and disease of giant cactus in Arizona, 168.
- cadaverinus*, *Dermestes* (see *D. ater*).
- Caedicia simplex*, sprays against, on fruit trees in New South Wales, 372.
- caesar*, *Zenillia* (*Aplomya*).
- caesifrons*, *Phorocera*.
- caespitum*, *Tetramorium*.
- Cages, for rearing *Theresia*, 169.
- Cajanus cajan*, *Heliothis armigera* on, in Tanganyika, 341.
- Calandra granaria* (in stored cereals), in Jugoslavia, 386 ; in Switzerland, 384 ; food-preferences and factors affecting development of, 384, 386 ; measures and experiments against, 210, 211, 292, 384, 387, 424, 425.
- Calandra oryzae* (in stored cereals), in Australia, 136, 168, 191, 245 ; in Br. Guiana, 427 ; in Mysore, 15, 16, 17 ; in Porto Rico, 395 ; strains and biology of, 136, 168, 191, 192, 384 ; heating of wheat by, 192 ; measures and experiments against, 16, 17, 193, 245, 395, 427.
- calicator*, *Heteropelma*.
- Calcium Arsenate, against cotton pests, 47, 48, 52, 75, 107, 175, 176, 398 ; favouring infestation of cotton by *Aphis gossypii*, 47, 76, 176 ; against pests of cucurbits, 107, 285, 404 ; against pests of potato, 44, 74, 136, 143, 154, 291, 297 ; against pests of pulses, 12, 247, 248 ; against *Lymantria monacha* on spruce, 239, 240, 241 ; against insects on other plants, 52, 107, 122, 279, 299 ; in baits for *Silpha* spp., 146 ; soil treatment with, against *Amphimallon majalis*, 250 ; effects of, on bees, 74, 75, 297 ; effects of, on mammals and birds, 241 ; formulae for, in dusts, 44, 47, 52, 122, 176, 247, 248, 285, 299, 398, 404 ; carriers for, 44, 47, 122, 247, 248, 398, 404 ; effect of carriers on injury to beans by, 247, 248 ; spraying with 44, 52, 74, 75, 107, 136, 143, 154, 279, 285, 291 ; and copper compounds, 44, 122, 247, 279, 404 ; and DDT, 47, 52, 398, 404 ; and ferric dimethyldithiocarbamate, 52 ; and lead arsenate, 48 ; and linseed-oil emulsion, 107 ; and nicotine, 176, 398 ; and sulphur, 52, 122, 247 ; study on French preparations of, 291.
- Calcium Arsenite, aeroplane dusting with, against sawfly on pine, 28 ; and sulphur, against Hemiptera on cotton, 46.
- Calcium Caseinate (Casein-lime), in sprays, 33, 279, 317, 369.
- Calcium Cyanamide, ineffective against *Chironomus* in rice seed-beds, 353.
- Calcium Cyanide, treatment of ants' nests with, 364 ; tent fumigation with, against Coccids, 291 ; technique of using solutions of, for tests of HCN on insects, 403.
- Calcium Fluosilicate, ineffective against *Anthonomus signatus*, 122.
- Calcium Hydroxide (see Lime).
- Calcium Oxide (see Quick-lime).
- Cales noacki*, parasite of *Aleurothrixus howardi* in Argentina, 66.
- Calidea dregii*, on cotton in Tanganyika, 341.
- California, pests of *Citrus* in, 49, 126, 127, 140, 227, 228, 323, 324, 355 ; cotton pests in, 111, 396 ; pests of forest and shade trees in, 50, 323, 391 ; miscellaneous pests in, 110, 111, 114, 324 ; Coccids on olive in, 114, 323 ; orchard pests in, 54, 111, 113, 115, 130, 322, 323, 325 ; pests of ornamental plants in, 114, 322, 325 ; pests of vegetables in, 112, 113, 114, 117, 300, 410 ; insects and virus diseases of vegetables in, 114, 171, 172 ; vine pests in, 53, 111, 322 ; *Iridomyrmex humilis* in, 53, 115, 127 ; insects pollinating lucerne in, 174 ; natural enemies and biological of insect pests in, 111, 113, 126, 127, 129, 174, 323, 392, 397 ; Coleoptera imported into, against *Hypericum*, 161 ; risk of spread of *Aleurocanthus woglumi* from Mexico into, 77 ; *Ephestia figulilella* imported into Ontario in peach stones from, 13 ; beneficial insects imported into other countries from, 8, 21, 162.



- California Red Scale (see *Aonidiella aurantii*).
- californicus*, *Limoni* ; *Tenuipalpus*.
- Caliroa limacina*, DDT against, in Australia, **158, 160** ; Pentatomid predacious on, in Chile, **7** ; on pear, **160**.
- Callidium violaceum*, in building timbers in Sweden, **294**.
- Calligrapha scalaris*, bionomics and control of, on elm in U.S.A., **34, 35**.
- Calliphora erythrocephala*, hardening of cuticle of, **202**.
- Calliptamus ictericus*, in Spain, **153**.
- Calliptamus italicus*, in Spain, **153**.
- Callitris glauca*, termites not damaging timber of, in Australia, **314**.
- Callosobruchus* (see *Bruchus*).
- Calluna vulgaris*, not naturally attacked by *Lasiocampa quercus* in France, **422** ; *Lochmaea suturalis* on, in Scotland, **5**.
- Calocarpum mammosum*, *Anastrepha serpentina* on, in Mexico, **321**.
- Calocoris biclavatus*, on potato in Czechoslovakia, **104**.
- Calocoris norvegicus*, on poppy and potato in Czechoslovakia, **100, 102, 104** ; on strawberry in Nova Scotia, **98** ; measures against, **98, 102**.
- Calocoris ochromelas*, predacious on *Tortrix viridana* in Central Europe, **331**.
- Calomel (see Mercurous Chloride).
- Calosoma sycophanta*, predacious on *Tortrix viridana* in Central Europe, **331**.
- Calotermes* (see *Kaloterme*s).
- camachoi*, *Apanteles*.
- Camellia*, Coccid on, in France and U.S.A., **322**.
- Camellia japonica*, new mite on, in California, **325**.
- camelliae*, *Aceria*.
- caminea*, *Ceratomya* (see *C. trifurcata*).
- Camphor, of little value against pests of stored products, **16, 68**.
- Camponotus herculeanus pennsylvanicus*, removing protective paint from trees in Connecticut, **360**.
- Camponotus nigriceps*, bait for, in dwellings in New South Wales, **371**.
- Campsomeris*, species of, parasitising *Clemora smithi* in Mauritius, **1** ; parasite of, **1**.
- cana*, *Procissio*.
- Canada, cereal pests in, **97, 108, 139, 338, 364, 365** ; forest pests in, **99, 268** ; miscellaneous pests in, **97-99** ; orchard pests in, **98, 336, 409** ; pests of stored products in, **29, 30, 78, 99** ; beneficial insects in, **139, 294, 365** ; restrictions on importation of plant products into other countries from, **194, 364**. (See also under the various Provinces.)
- canadensisella*, *Bucculatrix*.
- Cananga odorata*, pests of, in W. Africa, **36, 37**.
- Canavalia ensiformis*, *Tetranychus cucurbitae* on, in Punjab, **31**.
- cancellata*, *Schistocerca*.
- canella*, *Paria*.
- Cantharis rustica*, predacious on other insects in Central Europe, **331**.
- capitata*, *Ceratitis*.
- Capitophorus fragariae*, and virus diseases of strawberry in Britain, **188, 207** ; differences in relation of strawberry viruses to, **207** ; experiments with DDT smokes and, **212**.
- Capnodis*, on fruit trees in Palestine, **214-216, 273** ; parasite of, **216** ; experiments against, **214, 215**.
- capreae*, *Lochmaea*.
- Caproic Acid, in baits for *Popillia japonica*, **119, 261**.
- Capsicum*, *Phyrdenus muriceus* on, in Argentina, **66** ; prohibited cultivation of, against *Dacus* in S. Australia, **415** ; protection of, against *Limoni* *agonus* in Connecticut, **358** ; pests of, in Hawaii, **66** ; little attacked by *Leptinotarsa decemlineata* in Italy, **288** ; dust mixture injuring, **67**.
- Capsicum frutescens*, pests of, in Chile, **354**.
- capulifera*, *Apechthis* (*Pimpla*).
- Caradrina clavipalpis*, in hayricks in Scotland, **5**.
- Caradrina exigua* (see *Laphygma*).
- Caragana*, *Sitona tibialis* on, in Saskatchewan, **99**.
- Carbitol (see Diethylene Glycol Monoethyl Ether).
- Carbolic Acid (see Phenol).
- Carbolineum (see Tar Distillate).
- Carbon Bisulphide, fumigation of ants' nests with, **108, 264** ; as soil fumigant against Coleoptera, **309, 311, 366, 367, 424, 425** ; soil fumigation with, against *Phylloxera*, **22** ; apparatus for testing, as soil fumigant, **424** ; penetrative power of, in soil, **424, 425** ; in emulsion against *Hylemyia cilicrura*, **298** ; injected into tunnels of *Indarbela quadrinotata*, **373** ; against pests of stored products, **38, 136, 289, 355, 414, 424, 425** ; absorption of, by cacao beans, **38** ; against borers in tea chests, **355** ; and carbon tetrachloride, **38**.
- Carbon Dioxide, causes of production of, in stored cereals, **333, 384** ; and methyl bromide, fumigation of freight cars with, against pests, **30**.

- Carbon Tetrachloride, against pests of stored products, **38, 99, 136, 210, 414, 424, 425**; unsatisfactory as a soil fumigant, **424, 425**; mixtures of other fumigants with, **38, 210, 414**; use of, in DDT fog mixture, **260**.
- Carcelia rutilla*, parasite of *Bupalus piniarius* in Germany, **74**.
- Carcinops quatuordecimstriata*, associated with *Cryptobathys setarius* in Senegal, **427**.
- cardinalis*, *Dysdercus*; *Rodolia*.
- Cardolite, mutual solvent for rotenone and oil, **113**.
- cardui*, *Stenocarus*.
- Carica papaya* (see Papaya).
- caridei*, *Coccophagus*.
- Carnation, Aphids on, in Chile, **354**; *Thrips tabaci* on, in Rumania, **286**; azobenzene against *Tetranychus* on, in greenhouses, **180, 189**, *carnea*, *Chrysopa*.
- Carnegiea gigantea*, *Cactobrosis fernaldialis* and disease of, in Arizona, **168**.
- Carolina, North, pests of small fruits in, **122, 393**; insects on plum in, **322, 402**; tobacco pests in, **52**.
- Carolina, South, *Lygus oblineatus* on peach in, **176**; *Macropsis trimaculata* in, **402**.
- Carpenter Ant (see *Camponotus herculeanus*).
- Carpenter Bees (see *Xylocopa*).
- Carpet Beetles, DDT against, **178**. (See *Anthrenus* and *Attagenus*.)
- Carpocapsa* (see *Cydia*).
- Carpocoris pudicus* (*purpureipennis*), on cotton in Sicily, **419**.
- Carpoglyphus lactis*, moisture increasing infestation of dried fruits by, **210**.
- Carpophilus hemipterus*, methyl bromide against, in stored dates in California, **324**.
- Carposina adreptella*, sprays against, on raspberry in New Zealand, **61, 62**.
- Carrot, *Psila rosae* on, in Britain, **24, 25, 26, 207, 213**; *P. rosae* on, in Canada, **365**; pests of, in Denmark, **348**; *Orphanina scutata* on, in France, **137**; *Aphis ferruginea-striata* on, in Hawaii, **66**; *Phaulacridium vittatum* damaging, in New South Wales, **216**; *Cavariella aegopodii* on, in New Zealand, **64**; ringspot virus transmitted to, by *Hyadaphis sii*, **172**.
- Carrot Fly (see *Psila rosae*).
- caryae*, *Acrobasis*.
- caryana*, *Enarmonia* (*Laspeyresia*).
- Casein, in bait for fruit-flies, **144**; as spreader for sprays, **53, 140, 141**. (See Calcium Caseinate.)
- Cassava, **22**; pests of, in Brazil, **106, 108**; *Schistocerca gregaria* on, in Gold Coast, **90**; *Amblypelta lutescens* on, in Queensland, **275**; mites on, in St. Lucia, **93**.
- cassiae*, *Pachymerus*.
- Cassida* spp., bionomics and control of, on beet, etc., in Switzerland, **147**.
- castanea*, *Diparopsis*.
- castaneiceps*, *Spatulifimbria*.
- castaneum*, *Tribolium*.
- castaneus*, *Aphonus*.
- Castor, Mirids on, in E. Africa, **213**; Coccid on, in Argentina, **65**; *Anychus latus* on, in Eritrea, **287**; *Empoasca distinguenda* bred on, in Sudan, **293**.
- Castoreum, and cider, attracting *Hyponomeuta*, **145**.
- Casuarina*, *Stromatium barbatum* in timber of, in Mauritius, **2**.
- Catalpa*, *Pseudococcus comstocki* on, in Ontario, **335**.
- Catocephala*, *Podisus nigrolimbatus* predacious on, in Chile, **7**.
- Catocephala amphinome*, natural enemies of, on pine in Chile, **7**.
- Catolaccus aeneoviridis*, parasite of *Bucculatrix thurberiella* in U.S.A., **397**.
- Cattleya* (see Orchids).
- cattleyae*, *Ovanius*.
- Cauliflower, pests of, in Australia, **35, 217, 218, 242**; *Contarinia nasturtii* on, in Britain, **209**; *Brevicoryne brassicae* on, in Canada, **97**; *Hellula undalis* on, in Peru, **76**; pests of, in U.S.A., **252**.
- cauliella*, *Ephestia*.
- Cavariella aegopodii*, sprays against, on carrot in New Zealand, **64**.
- cavus*, *Dibrachys*.
- Cecidomyia citrulli*, on cucurbits in Arizona, **408**.
- Celeriac, ringspot virus transmitted to, by *Hyadaphis sii*, **172**.
- Celery, *Psila rosae* on, in Britain, **25**; Aphids and virus diseases of, in California, **171, 172, 173**; *Nysius* on, in Hawaii, **66**.
- Celite, **252**.
- Celite, **209, 180, 406, 407**.
- Cellulose, high content of, increasing susceptibility of wood to *Kaloterme brevis*, **375**.
- Celtis*, *Pulvinaria innumerabilis* on, in U.S.A., **322**.
- Centeter cinerea*, parasite of *Popillia japonica* in Connecticut, **357**.
- Central Provinces (India), *Indarbela quadrinotata* in, **373**.
- centurio*, *Sybra*.
- cephalonica*, *Corcyra*.
- cephi*, *Bracon* (*Microbracon*).
- Cephus cinctus* (on cereals in Canada), bionomics of, **10**; parasite of, **365**; outbreak and control of, **97**; reactions

- of varieties of wheat and barley to, **338, 364.**
- Cephus pygmaeus*, **10.**
- Ceramica picta*, DDT against, in Canada, **97.**
- Ceraphron*, hosts of, in Ceylon, **3.**
- cerasi*, *Myzus*; *Rhagoletis*.
- Ceratia* (see *Aulacophora*).
- Ceratitidis capitata*, **321**; on orange in Brazil, **106**; bags protecting pears against, in France, **196**; introduction of *Belonuchus rufipennis* against, in Italy, **285**; on vines in Spain, **270**; effect of temperature changes on development of, **343**; toxicity of DDT and 666 to, **167.**
- ceratoniae*, *Myelois*.
- Ceratostomella*, relation of *Ips sexdentatus* to, in spruce in Turkey, **40.**
- Ceratostomella ulmi* (causing Dutch Elm Disease), outbreak of, in Quebec, **99**; in U.S.A., **356**; and associated Scolytids, methods of determining presence of, **356**; defoliation rendering elm susceptible to, **360.**
- Cerconota anonella*, Staphylinid associated with, in Annonaceous fruit in Brazil, **106.**
- cerealella*, *Sitotroga*.
- Cereals, *Toxoptera graminum* on, in Argentina, **19**; species of *Rhopalosiphum* infesting, **295, 296.** (See Maize, Wheat, etc.)
- Cereals (Stored), pests in, and their control, **1, 15, 16, 17, 23, 30, 42, 78, 99, 178, 302, 383, 384, 427, 428**; machine for destroying insects in, **60**; other factors affecting deterioration of, **383.**
- Ceroplastes rubens*, spray against, on mango and *Citrus* in Queensland, **221.**
- Cerosomyia usitata*, bionomics of, parasitising *Oxycanus cervinatus* in New Zealand, **63.**
- Cerotoma caminea* (see *C. trifurcata*).
- Cerotoma ruficornis* (see *Andrector*).
- Cerotoma trifurcata*, on beans in U.S.A., **171**; synonymy of, **171.**
- cervina*, *Thosea*.
- cervinatus*, *Oxycanus*.
- Cetyl Alcohol, use of, in DDT emulsion concentrates, **221.**
- Ceuthorrhynchus assimilis* (on crucifers), in Britain, **310**; in Br. Columbia, **34**; in U.S.A., **299, 410**; bionomics of, **299**; tests of insecticides against, **299, 310.**
- Ceuthorrhynchus macula-alba*, on poppies in Czechoslovakia, **100.**
- Ceuthorrhynchus pleurostigma* (on cabbage), mechanism of injury by, in France, **423**; benzene hexachloride against, in Switzerland, **385.**
- Ceuthorrhynchus quadridens*, benzene hexachloride against, on cabbage in Switzerland, **385.**
- Ceylon, *Pulvinaria psidii* on guava in, **322**; Lepidoptera on rice in, **14, 15**; pests of tea and associated plants in, **2, 3**; beneficial insects in, **3, 15**; *Xanthopimpla stemmator* introduced into Mauritius from, **1**; Coleoptera introduced into Chile in tea chests from, **355.**
- ceylonica*, *Fornicia*.
- Chaetocnema concinna*, on beet in Switzerland, **147.**
- Chaetodacus* (see *Dacus*).
- Chalcodermus aeneus*, on cowpeas in Virginia, **264, 405**; bionomics of, **405**; sprays against, **264.**
- chalybeus*, *Orcus*.
- Chamaecyparis lawsoniana*, **299.**
- Chariestervus antennator*, and cat-facing of peaches in Virginia, **249.**
- charpentieri*, *Oedipoda*.
- Cheesewood, White (see *Alstonia scholaris*).
- Cheimatobia brumata* (see *Operophtera*).
- Chelonella* (see *Chelonus*).
- Chelonus*, parasite of *Platyedra gossypiella* in Somalia, **226.**
- Chelonus curvumaculatus*, **226.**
- Chelonus phthorimaeae*, introduced into Chile and Australia from California against *Gnorimoschema operculella*, **20, 162.**
- Chelonus versatilis*, **226.**
- Chenopodium*, not attacked by *Atanus exitiosus* in Argentina, **426.**
- Chenopodium album*, **426**; crop pests on, **147, 185, 230.**
- Chermes cooleyi*, natural enemies and control of, on conifers in Britain, **308.**
- Chermes nordmannianae* (on *Abies alba*), in Czechoslovakia, **101**; characters and importance of, in Switzerland, **202**; experiments against, **202.**
- Chermes nüsslini* (see *C. nordmannianae*).
- Chermes piceae* (on *Abies*), establishment of *Leucopis obscura* against, in New Brunswick, **9**; in Switzerland, **202.**
- Cherry, *Pantomorus xanthographus* on, in Chile, **8**; pests of, in Czechoslovakia, **100, 101, 102**; pests of, in Italy, **284, 285**; *Anastrepha striata* on, in Mexico, **144**; *Lachnosterna* destroying seedlings of, in Ontario, **97**; Scolytid possibly introducing pathogenic organism into, in Queensland, **415**; *Orthosia stabilis* on, in Spain, **150**; pests of, in Switzerland, **70, 143**; pests of, in U.S.S.R., **314**;



- pests of, in U.S.A., **57, 297, 298**; not suitable food-plant for *Chloroclystis rectangulata*, **383**.
- Cherry, Wild Bitter (see *Prunus emarginata*).
- Cherry Fly (see *Rhagoletis cerasi*).
- Chervil (see *Anthriscus cerefolium*).
- Cherymoya (see *Annona cherimolia*).
- Chestnut, pests of, in France, **290**.
- Cheyletus eruditus*, ecology and suggested use of, predacious on mites in stored grain and flour in Britain, **209, 210**.
- Chick Peas (see *Cicer arietinum*).
- Chicory, *Plodia interpunctella* in harvested, in Canada, **30**.
- Chile, miscellaneous pests in, **7, 8, 19-21, 353-355**; beneficial insects and biological control in, **7, 8, 19, 20, 21, 354, 355**; *Copidosoma koehleri* imported into California from, **21**.
- chilensis*, *Thanatopsycha*.
- Chilocorus stigma* (*bivulnerus*), predacious on *Chionaspis furfura* in New York, **199**.
- Chilomenes sexmaculata*, bionomics of, in Bombay, **4**.
- China, *Aonidiella orientalis* on litchee in, **323**.
- China Clay, as a carrier for dusts, **211, 233**.
- Chinch Bug (see *Blissus leucopterus*).
- Chinch Bug, Hairy (see *Blissus hirtus*).
- chinensis*, *Bruchus*; *Estigmene*.
- Chionaspis dilatata* (see *Phenacaspis*).
- Chionaspis furfura*, bionomics and control of, on apple in New York, **198**.
- Chirimoya (see *Annona cherimolia*).
- Chironomus*, bionomics and control of, damaging rice plants in Portugal, **353**.
- Chironomus plumosus*, use of, for cuticle permeability tests, **277, 278**.
- Chloral Hydrate, action of, in cockroaches, **58**.
- chlorana*, *Earias*.
- Chloranil, effect on *Epilachna varivestis* of beans from seeds treated with, **359**.
- Chlorobenzene, as solvent for DDT, **85**.
- Chlordane (1068), tests and properties of, as an insecticide, **119, 120**.
- Chloride of Lime, unsatisfactory against Diptera in rice seed-beds, **353**.
- Chloris gayana*, Cercopid on, in Brazil, **86**.
- 4-Chlor-2-methyl-phenol, irritant effect of, increasing efficiency of DDT, **292**.
- Chlorochiton*, parasite of, in New Zealand, **68**.
- Chlorochroa sayi*, importance of, on wheat in Canada, **97, 269**; in U.S.A., **46, 111, 180, 181, 396, 397, 398**; reducing seed production of beet, **398**; on cotton, **46, 180, 181, 396**; on other plants, **111, 396**; natural enemies of, **397**; dusts against, **46, 111, 180, 181**.
- Chloroclystis rectangulata*, on apple and pear in Switzerland, **70, 383**; bionomics of, **383**; sprays against, **70**.
- Chlorophora tinctoria*, fustic (q.v.) obtained from, **375**.
- Chlorophorus annularis*, bionomics and control of, in stored bamboo in India, **90, 91**.
- Chlorops pumilionis* (*taeniopus*), on wheat and barley in Moravia, **101**.
- Chlorpicrin, as a soil fumigant, **10**; against pests in stored products, **99, 268**; changes in susceptibility of pupae of *Tribolium confusum* to, **57**; low temperature fumigation with, **268**.
- 1-Chlor-2-(2-(2,3,4,6-tetrachlorphenoxy)-ethoxy)ethane, ineffective as a synergist for pyrethrum marc, **123**.
- Choko (see *Sechium edule*).
- Chorizagrotis auxiliaris*, on lucerne in Kansas, **363**.
- Chorthippus brunneus*, in Spain, **153**.
- Chortinaspis*, revision of, **323**.
- Chortoicetes terminifera*, in Australia, **133-135, 162, 217, 222, 416, 417**; climatic relations, ecology and outbreaks of, **133-135**; measures and experiments against, **162, 217, 416, 417**.
- chortoicetes*, *Scelio*.
- Chortophila* (see *Hylemyia*).
- Chromaphis juglandicola*, DDT against, on walnut in California, **115**.
- chrysanthemi*, *Diarthronomyia*.
- Chrysanthemum*, pests of, in greenhouses, in Britain, **189, 325, 326**; pests of, in Ontario, **184, 185**; *Phlyctaenia rubigalis* on, in U.S.A., **180**; effect of HCN on, **326**; removal of prohibition of import of, into Britain, **194**.
- Chrysanthemum leucanthemum* var. *pinatifidum*, relation of *Aphis rhamni* to, in Maine, **230**.
- Chrysocharis laricinellae*, utilisation of, against *Coleophora laricella* in Canada, **9, 302**.
- Chrysoclista putripennella*, bionomics and control of, on apple in Italy, **282**.
- Chrysomela gemellata*, Rossi (see *C. quadrigemina*).
- Chrysomela hyperici* (attacking *Hypericum perforatum*), establishment and utilisation of, in Australia, **161, 220**; imported into California, **161**; establishment of, in New Zealand, **161**.
- Chrysomela quadrigemina* (attacking *Hypericum perforatum*), establishment and utilisation of, in Australia, **161, 220**; imported into California, **161**.

- chrysomphali*, *Aphytis*.  
*Chrysomphalus aonidum*, auct. (see *C. ficus*).  
*Chrysomphalus dictyospermi*, in Argentina, **65, 66**; in Chile, **353, 354**; on fruit trees, **65, 66, 353, 354**; on olive, **354**; on tea, **65**; measures against, **353**.  
*Chrysomphalus ficus*, on fruit trees in Argentina, **66**; spray against, on *Citrus* in Palestine, **273**.  
*Chrysopa*, predacious on Aleuroidids in Punjab and Morocco, **187, 427**.  
*Chrysopa carnea*, predacious on Lepidoptera and Aphids in Italy, **282, 420**.  
*Chrysopa phyllochroma*, probably predacious on *Aphis fabae* in Britain, **6**.  
*chrysopygia*, *Cisseis* (*Neospades*).  
*Chusquea*, *Neoterius mystax* in timber of, in Chile, **354**.  
*Cicadella stellulata*, on pear and cherry in U.S.A., **57**.  
*Cicer arietinum*, *Thyreion gelotopoeon* on, in Argentina, **66**; *Liriomyza cicerina* on, in U.S.S.R., **148**; (stored), *Bruchus maculatus* imported into Canada in, **30**; development of *Trogoderma granarium* on, **69**.  
*cicerina*, *Liriomyza* (*Agromyza*).  
Cider, in baits for moths, **144, 195**.  
*ciliocurra*, *Hylemyia*.  
*Cimbex amerinae* (see *Pseudoclavellaria*).  
*Cimbex lutea* (*variabilis*), on *Salix viminalis* in Czechoslovakia, **102**.  
*Cimex lectularius*, tests of insecticides on, **203, 292**.  
*Cinchona*, Mirid on, in Guatemala, **22**.  
*cinctus*, *Cephus*.  
*Cineraria*, insects on, in greenhouses in Rumania, **286**.  
*cinerea*, *Centeter*; *Formica*; *Piesma*.  
*cingulata*, *Rhagoletis*.  
*circellaris*, *Agrochola* (*Orthosia*).  
*circumflexus*, *Myzus*.  
*Cirphis loreyi*, outbreak of, on sugar-cane in Queensland, **368**.  
*Cirphis unipuncta*, on rice in Fiji, **43**; outbreak of, on sugar-cane in Queensland, **368**.  
*Cirsium*, relation of forms of *Aphis fabae* to, in Britain, **39, 164**.  
*Cisseis chrysopygia*, on strawberry in Queensland, **246**.  
Citral, in baits, **119**.  
*citrella*, *Phyllocnistis*.  
*citri*, *Dialeurodes*; *Pseudococcus*; *Scirtothrips*; *Unaspis*.  
Citricola Scale (see *Coccus pseudomagnoliarum*).  
*citricola*, *Bemisia*; *Pulvinaria*.  
*citricolii*, *Aleurolobus*.  
*citrina*, *Aonidiella*.  
*citripertus*, *Aleurocanthus*.  
*citrulli*, *Cecidomyia* (*Itonida*).  
*Citrullus vulgaris* (see Watermelon).  
*Citrus*, pests of, in Argentina, **65, 66**; pests of, in Australia, **6, 162, 221, 222, 245, 246, 368, 372, 415**; pest of, in Brazil, **106**; pests of, in Chile, **8, 353, 354**; *Aonidiella comperei* on, in Guatemala, **322**; pests of, in India, **186, 187, 373, 374**; *Tetranychus telarius* on, in Italy, **287**; *Pulvinaria* spp. on, in Japan, **322**; pests of, in Mexico, **77, 321, 322, 387**; pests of, in Palestine, **273**; *Aonidiella inornata* on, in Philippines, **323**; pests of, in St. Lucia, **92**; *Achaea* attacking fruits of, in Sierra Leone, **28**; pests of, in Spain, **96, 149**; *Aonidiella comperei* on, in Thailand, **322**; pests of, in U.S.A., **49, 80, 125, 126, 127, 140, 170, 227, 228, 321, 323, 324, 355**; spray causing injury to, **140**; materials preventing penetration of DDT solutions into, **123, 124**.  
Citrus Blackfly (see *Aleurocanthus woglumi*).  
Citrus Leaf Miner (see *Phyllocnistis citrella*).  
Citrus Red Scale (see *Aonidiella aurantii*).  
Citrus Thrips (see *Scirtothrips citri*).  
Citrus Whitefly (see *Dialeurodes citri*).  
*Clausenia purpurea*, utilisation of, against *Pseudococcus* in Palestine, **273**.  
*clavipalpis*, *Caradrina*.  
Clay, as carrier for dusts, **119, 122, 247**; DDT spray powders prepared with, **252, 318, 411**; in repellent spray mixtures, **2, 155**.  
*Clemora smithi*, natural enemies of, on sugar-cane in Mauritius and Barbados, **1, 22**.  
*Cleonus punctiventris*, effects of temperature on development of, **343**.  
*clerkella*, *Lyonetia*.  
*Clidemia hirta*, utilisation of *Liothrips urichi* against, in Fiji, **43**.  
*Clivia*, *Xanthopastis timais* on, in Brazil, **105**.  
*cloacella*, *Tinea*.  
*Closterocerus*, parasite of *Liriomyza flaveola* in Italy, **378**.  
*Closterocerus utahensis*, parasite of *Bucculatrix thurberiella* in U.S.A., **397**.  
Clothes Moths, **308**; tests and use of DDT against, **178, 211, 259, 260**. (See *Tineola biselliella*).  
Clover, pests of, in Britain, **310**; *Dichroplus* on, in Chile, **19**; pests of, in Czechoslovakia, **100, 101**; pests of, in Denmark, **348**; *Oxycaenus cervinatus* damaging, in New Zealand, **62**; *Philaenus leucophthalmus* on, in Ohio, **84**; favouring wireworms in Idaho, **116**.

- Clover, Bur (see *Medicago hispida*).  
 Clover, Sweet (see *Melilotus*).  
 Clover Mite (see *Bryobia praetiosa*).  
 Clover Seed Chalcid (see *Bruchophagus gibbus*).  
*cluentius, Cocytius*.  
*Clysiana (Clysia) ambiguella* (on vines), in France, 278; in Switzerland, 144, 145, 198; bionomics of, 278; natural enemies of, 144, 278; measures against, 144, 145, 198, 278, 279.  
*coarctata, Hylemyia (Leptohylemyia)*.  
*Coccinella ancoralis*, predacious on Aphids and Coccids in S. America, 19; migrations of, 19.  
*Coccinella repanda* var. *transversalis*, predacious on *Anuraphis persicae-niger* in New South Wales, 219; not affected by DDT, 219.  
*Coccinella septempunctata*, bionomics of, in Bombay, 4; in Germany, 74; in Italy, 420; in Rumania, 148; predacious on Aphids, 4, 148, 420; predacious on other insects, 4, 74.  
*Coccobacillus acridiorum*, attempted utilisation of, against *Schistocerca*, 51.  
*Cocomytilus lantanae*, in Argentina, 65, 66; on castor, 65; parasite of, 66.  
*Coccophagus caridei*, parasite of *Saissetia oleae* in Chile, 354.  
*Coccophagus gurneyi*, introduced parasite of *Pseudococcus gahani* in Chile, 8, 354.  
*Coccophagus heteropneusticus* (see *C. caridei*).  
*Cocotrypes congonus*, bionomics of, in Fr. W. Africa, 305.  
*Coccus deltae*, on *Citrus* in Argentina, 65.  
*Coccus hesperidum*, on mulberry in Argentina, 65; ant associated with, on orange in California, 127; parasite of, 127.  
*Coccus pseudomagnoliarum*, sprays against, on orange in California, 140.  
 Cochineal Insects (see *Dactylopius*).  
*cochleariae, Phaedon*.  
 Cockroaches, effects of temperature on development of, 343; formation of cuticle of, 203; hardening of ootheca of, 202; use of, for insecticide tests, 57, 116, 120, 126, 387.  
 Coconut (*Cocos nucifera*), pests of, in Brazil, 106; *Graeffea crouani* on, in Fiji, 43; *Aonidiella* spp. on, in other countries, 322, 323.  
*Cocytius cluentius*, on sweet potato in Argentina, 66.  
 Code 2, 231.  
 Codling Moth (see *Cydia pomonella*).  
*coeruleocephala, Diloba*.  
*coerulescens, Oedipoda*.  
*coffaeae, Neorhizoecus (Rhizoecus); Saissetia*.  
*coffearia, Homona*.  
 Coffee, pests of, in W. Africa, 36, 37, 225, 305; *Stephanoderes hampei* on, in Brazil, 105; new Coccids on, in Colombia and Ecuador, 376; *Aleurocanthus woglumi* on, in Mexico, 77; new Coccids on, in Trinidad, 376; *Pulvinaria psidii* on, in Uganda, 322; waste products of, as baits for locusts, 164, 306.  
 Coffee Borer (see *Stephanoderes hampei*).  
*cognatella, Aphis*.  
*cognatellus, Hyponomeuta*.  
*Colaspoides foveiventris*, on lucerne in Queensland, 272.  
*Colemania sphenerioides*, measures against, on sorghum in Mysore, 15.  
*Coleophora hemerobiella*, on apple in Moravia, 101.  
*Coleophora laricella*, on larch in Canada, 9, 301, 302; biological control of, 9, 302.  
*Coleophora salmani*, on birch in Nova Scotia, 302.  
*Colias eurytheme*, disease of, in U.S.A., 51.  
*collaris, Amicroplus*.  
 Colloids, functions of, in insecticides, 389.  
*Collops marginellus*, destroying eggs of *Euschistus impictiventris* in Arizona, 396; unable to penetrate egg-shell of *Chlorochroa sayi*, 397.  
*Colocasia, Prodenia litura* on, in Fiji, 43.  
 Colombia, new Coccid on coffee in, 376.  
*coloradensis, Sarcophaga (Blaesoxiphotheca)*.  
 Colorado, *Cydia pomonella* on apple in, 334; parasite of *Loxostege commixtalis* in, 294.  
 Colorado Potato Beetle (see *Leptinokarsa decemlineata*).  
*Colpoclypeus silvestrii*, gen. et sp. n., bionomics of, parasitising *Rhopobola naevana* in Italy, 281, 282.  
*Colutea, Etiella zinckenella* on, in France, 270.  
*Comedo larvarum*, parasite of *Operophtera brumata* in Italy, 283.  
*comes, Erythroneura*.  
*commixtalis, Loxostege*.  
*communis, Panorpa*.  
*comperei, Aonidiella*.  
*Comperiella bifasciata*, utilisation of, against *Aonidiella aurantii* in Australia, 162; parasite of *A. citrinus* in California, 126, 127.  
*compositus, Platypus*.  
*Compsilura concinnata*, parasite of *Pieris brassicae* in Germany, 352.  
*comptana, Ancylis*.



- compunctor*, *Apechthis*.  
*comstocki*, *Pseudococcus*.  
*comtus*, *Xanthandrus*.  
*conchiformis*, auct., *Mytilococcus* (see *Lepidosaphes ficus*).  
*concinna*, *Chaetocnema*; *Compsilura*.  
*configurata*, *Barathra*.  
*confusa*, *Morrisonia*.  
*confusionis*, *Zenillia* (*Aplomya*).  
*confusum*, *Tribolium*.  
*congonus*, *Coccotrypes*.  
*congregatus*, *Apanteles*.  
*coniferana*, *Cydia* (*Laspeyresia*).  
*conii*, *Rhopalosiphum* (see *Hyadaphis sii*).  
*Conistra walkeri*, bionomics of, on fruit trees in Canada and U.S.A., 409.  
*Conium maculatum*, Aphid transmitting viruses to celery, etc., from, in California, 172.  
*conjugella*, *Argyresthia*.  
 Connecticut, pests of forest and shade trees in, 56, 356, 357, 360, 361; *Pyrausta nubilalis* on maize in, 358-359; miscellaneous pests in, 360, 361; orchard pests in, 57, 356, 357, 360; pests of vegetables in, 248, 358, 359; *Popillia japonica* in, 357, 361; utilisation of *Bacillus popilliae* against *P. japonica* in, 356, 390; beneficial insects and their utilisation in, 356, 357, 360, 361.  
*Conops unicolor*, parasite of *Campsomeris* in Mauritius, 1.  
*Conotrachelus crataegi*, sprays against, on quince in New York, 199.  
*Conotrachelus nenuphar*, in Canada, 98; in U.S.A., 84, 199, 249, 257, 357, 393, 394; on apple, 257, 357; on blueberry, 393, 394; on plum and peach, 357; types of injury to peaches by, 84, 249; on quince, 199; effect of spring temperature on, 357; insecticides against, 84, 98, 199, 257, 394.  
*conspersa*, *Narosa*.  
*Contarinia lycopersici*, food-plants of, in Hawaii, 66.  
*Contarinia medicaginis*, on clover and lucerne in Bohemia, 100.  
*Contarinia nasturtii*, on crucifers in Britain, 188, 208; bionomics and distribution of, 208.  
*Contarinia onobrychidis*, on *Onobrychis sativa* in Moravia, 101.  
*Contarinia pyrivora*, measures against, on pear in England, 94.  
*Contarinia sorghicola* (on sorghum), DDT against, in Queensland, 244; distribution of, 130.  
*Contarinia tritici*, on wheat in Bohemia, 100.  
*convolvuli*, *Myzus* (see *Macrosiphum solani*).  
*Convolvulus arvensis*, *Typophorus viridicyaneus* on, in Kansas, 391.  
*cooleyi*, *Chermes* (*Adelges*).  
*Copidosoma*, parasite of *Chrysoclista putripennella* in Italy, 282.  
*Copidosoma koehleri*, parasite of *Gnorimoschema operculella* in Chile, 21; importation and rearing of, in California, 21.  
 Copper Arsenate (Basic), and sulphur, dusting with, against cotton pests, 46, 47; in sprays against pests of other plants, 67, 121, 265; fungicidal action of, 265; and nicotine sulphate, 67, 121; formulae containing, 46, 47, 121, 265.  
 Copper Carbonate, against pests of stored cereals and beans, 17, 35, 245, 295; as fungicide in mixed dust, 275.  
 Copper Chloride, use of, in rearing eggs of *Anastrepha*, 321.  
 Copper Oxide, reducing toxicity of tartar emetic to *Dacus cucurbitae*, 67.  
 Copper Oxychloride, against beetles in stored beans and maize, 35, 36, 245.  
 Copper Oxychloride-sulphate, dust containing calcium arsenate and, 404.  
 Copper Sulphate, unsatisfactory against Diptera in rice seed-beds, 353; in mixed dusts, 122, 247, 248, 253, 254, 299; as activator for nicotine, 299; in mixed sprays (see also Bordeaux mixture), 155, 253; tribasic form of, 253, 254.  
*Coptotermes frenchi*, infesting house timbers in Australia, 314; underground galleries and control of, 314.  
*Coralimela brunnea*, measures against, on palms in Brazil, 107.  
*Corcyra cephalonica*, in imported ground-nuts in Canada, 30; in stored cereals in Mysore and Fiji, 15, 16, 17, 43; possible parasites of, in cottonseed in Somalia, 226; measures against, 16, 17, 30.  
*Cordia interrupta*, insects not preventing spread of, in Mauritius, 2.  
 Corfu, *Asynapta furcifer* in, 286.  
*coriacea*, *Pyroderes*.  
*coriaceus*, *Homalinotus*.  
 Coriander, virus transmitted to, by *Hyadaphis sii*, 172.  
 Corks, Wine, Tineids damaging, 71, 72.  
 Corn Borer, European (see *Pyrausta nubilalis*).  
 Corn Borer, South-western (see *Diatraea grandiosella*).  
 Corn Earworm (see *Heliothis armigera*).  
 Corn Smut (see *Ustilago zeae*).  
*corni*, *Eulecanium* (*Lecanium*).  
*Cornus*, *Macremphytus* on, in Massachusetts, 406.

- Cornus florida*, *Aegeria scitula* on, in Connecticut, **360**.
- cornutus*, *Passalus* (see *Popilius disjunctus*); *Vasates* (*Phyllocoptes*).
- coryli*, *Eulecanium* (*Lecanium*); *Monocesta*; *Phylus*.
- Corylus avellana*, *Phylus* spp. on, in Czechoslovakia, **103**; pests of, in Italy, **282, 283, 284**.
- Cosmophila flava*, on cotton in Somalia, **226**.
- Cosmopolites sordidus*, *Plaesus javanus* predacious on, on banana in Tahiti, **43**.
- Cossus cossus*, experiments with azobenzene and, **190**.
- Costa Rica, failure to introduce *Eretmocerus serius* into Mexico from, **77**.
- costalis*, *Eutermes* (*Nasutitermes*).
- Cotoneaster* spp., winter food-plants of *Rhopalosiphum crataegellum*, **295**.
- Cotton, pests of, in S. Africa, **339**; pests of, in Argentina, **19, 65**; pests of, in Australia, **42, 243, 244, 245, 316, 339**; pests of, in Barbados, **23**; pests of, in Brazil, **107, 108**; *Pinnaspis minor* on, in Chile, **354**; *Anychus latus* on, in Eritrea, **287**; *Dysdercus insularis* on, in Fiji, **43**; *Schistocerca gregaria* on, in Gold Coast, **90**; *Empoasca* spp. on, in India, **31**; pests of, in Italy, **419, 420**; *Platyedra gossypiella* on, in Mexico, **50, 182, 387**; *Bemisia tabaci* on, in Morocco, **427**; pests of, in Nigeria and Nyasaland, **342**; pests of, in Peru, **75, 76**; pests of, in S. Rhodesia, **339**; pests of, in Sicily, **419, 420**; Lepidoptera on, in Somalia, **226, 227**; pests of, in Sudan, **293, 340**; pests of, in Tanganyika, **292, 340, 341**; pests of, in Turkey, **61**; pests of, in Uganda, **213, 340**; pests of, in U.S.A., **46, 47, 48, 50, 52, 111, 175, 176, 180, 181, 396, 397, 398**; pests of, in W. Indies, **342**; varieties and time of sowing of, in relation to pests, **75, 243, 244, 339, 340, 341**; little attacked by *Colemania sphenarioides*, **15**.
- Cotton Aphid (see *Aphis gossypii*).
- Cotton Bollworm, American (see *Heliothis armigera*).
- Cotton Bollworm, Pink (see *Platyedra gossypiella*).
- Cotton Bollworm, Spiny (see *Earias*).
- Cotton Fleahopper (see *Psallus seriatus*).
- Cotton Mirid, of Uganda (see *Lygus vosseleri*).
- Cotton Stainers (see *Dysdercus*).
- Cottonseed, treatment of, against *Platyedra gossypiella*, **182, 273**; other insects in, **66, 273**.
- Cottonseed Meal, Coleoptera in, **30, 66**.
- Couch Grass (see *Agropyrum repens*).
- Coverite, **189, 190**.
- Cowpeas, *Chalcodermus aeneus* on, in U.S.A., **264, 405**.
- Crab Grass (see *Digitaria sanguinalis*).
- Crambus*, in U.S.A., **139, 363**; parasite of, **139**; measures against, damaging lawns, **363**.
- Crambus laqueatellus*, damaging turf in Connecticut, **361**.
- Crambus malacellus*, on maize in Mauritius, **1**.
- Crambus mutabilis*, damaging turf in Connecticut, **361**.
- Crambus trisectus*, damaging turf in Connecticut, **361**.
- Cranberry, pests of, in U.S.A., **298**.
- Cranberry Fireworm (see *Rhopobota naevana*).
- Cranberry Fruit-worm (see *Mineola vaccini*).
- crassifemur*, *Eulimneria*.
- crassipes*, *Antrocephalus*.
- crataegellum*, *Rhopalosiphum*.
- crataegi*, *Aporia*; *Conotrachelus*.
- Crataegus oxyacantha*, winter food-plant of *Rhopalosiphum crataegellum*, **295**.
- Crataegus oxyacantha monogyna*, *Siphoninus phillyreae* on, in Morocco, **427**.
- Cremnops vulgaris* (parasite of *Loxostege* spp.), **294**; bionomics of, in N. America, **294, 295**; introduction of, into S. Africa, **294**.
- Creolin, against Diptera in rice seed-beds, **353**; mixture containing, **353**.
- Creontiades femoralis*, dusts against, on cotton in Arizona, **46, 180**.
- Creosote, value and uses of, against termites, **314, 399**; treatments of bamboo culms with, against other insects, **90, 91, 92**; as barrier against *Blissus leucopterus*, **128**; twine treated with, against *Psila rosae*, **26**; ineffective as repellent against *Tettigella viridis*, **225**; as bee repellent in lead-arsenate sprays, **60**; and oils, **90, 91, 92, 399**.
- Creosote Salts, as repellent against *Psila rosae*, **25**; fumes of, affecting man, **25**.
- Cresol (Cresylic Acid), as mutual solvent for spray ingredients, **113, 221**; ineffective as bee repellent in dusts, **297**.
- cresphontes*, *Papilio*.
- Cresylic Acid (see Cresol).
- Crioceris asparagi* (Asparagus Beetle), tests of insecticides against, in Canada, **98, 183**; in Moravia, **101**.
- Crioceris duodecimpunctata*, tests of insecticides against, in Canada, **98, 183**.

- cristatus*, *Arilus*.  
*Crociodolomia binotalis*, on crucifers in Queensland, 242.  
*Crociosema plebeiana*, on cotton in Italy, 420.  
*Crocus sativus*, treatment of corms of, against *Rhizoglyphus echinopus* in Argentina, 414.  
*Crotalaria*, *Zygita diva* on, in Queensland, 272.  
*crouani*, *Graeffea*.  
*cruciata*, *Austroicetes*.  
Cryolite, against cabbage pests, 67, 199, 248, 263, 299; increasing infestation by *Brevicoryne brassicae*, 263; against cotton pests, 47, 107, 398; against pests of leguminous crops, 67, 118, 248, 265, 359; against Lepidoptera on maize, 107, 358, 408; against orchard pests, 6, 33, 215, 297; against pests of solanaceous plants, 44, 118, 160, 161, 358, 359; against pests of other plants, 122, 242, 279, 394; toxicity of, to bees, 297; dusting with, 44, 47, 67, 122, 160, 161, 199, 242, 248, 263, 279, 297, 299, 358, 359, 394, 398, 408; carriers for, 44, 67, 199, 358, 359, 394; effects of carriers on, efficiency of, 248, 359; oil-impregnated dust of, 199, 263; spraying with, 6, 33, 107, 118, 215, 265, 279, 297, 299; formulae containing, 33, 44, 118, 160, 199, 242, 263, 279, 358, 359, 394, 398, 408; and copper compounds, 44, 118, 119, 279; and nicotine, 67; and oil emulsions, 33, 107; and sulphur, 122, 394, 398; blueberry slightly injured by, 394.  
*Cryptobathys setarius*, bionomics of, on *Cucurbita maxima* in Senegal, 427.  
*Cryptococcus fagi*, on beech in Canada, 9, 301; *Nectria coccinea* associated with, 301.  
*Cryptolaemus montrouzieri*, utilisation of, against *Pseudococcus* in Chile and Mexico, 8, 387.  
*Cryptorrhynchus lapathi*, on willow in Czechoslovakia, 102.  
*Cryptorrhynchus mangiferae*, bionomics and control of, on mango in Queensland, 221, 222.  
*Cryptotermes* (see *Kaloterms*).  
*Ctenolepisma urbana*, DDT against, in Australia, 161.  
Cuba, food-plants of *Aonidiella orientalis* in, 323; catalogue of insect pests in, 17.  
Cubé, dusting with, 13, 14, 123, 225, 248, 252, 253, 300, 301, 392; carriers for, 14, 248, 252, 301, 392; effects of carriers on, 248, 392; spraying with, 13, 49, 140, 252, 300, 301; spreaders for, 140, 252; formulae containing, 113, 140, 252, 301; with oils, 49, 113; rotenone contents of, 14, 49, 123, 140, 252, 301; other insecticidal constituents of, 14; effectiveness of toxic ingredients of, not reduced by storage in oil, 49.  
*cubensis*, *Trichopria*.  
Cucumber, pests of, in Australia, 242, 243, 274; *Tetranychus telarius* on, in Britain, 189; pests of, in Czechoslovakia, 100, 101; ant damaging, in Hawaii, 67; pests of, in New York, 404; *T. telarius* on, in Ontario, 185; *Gryllulus domesticus* attacking, in greenhouses in U.S.S.R., 347; *Diabrotica melanocephala* transmitting bacterial wilt of, 404; insecticides and injury to, 159, 189, 404.  
Cucumber Beetle, Spotted (see *Diabrotica duodecimpunctata*).  
Cucumber Beetle, Striped (see *Diabrotica melanocephala*).  
*cucumeris*, *Epitrix*.  
*cucumis*, *Dacus* (*Austrodacus*).  
Cucurbit Midge (see *Cecidomyia citrulli*).  
*Cucurbita digitata*, *Cecidomyia citrulli* not found on, in Arizona, 408.  
*Cucurbita maxima*, *Cryptobathys setarius* on, in Senegal, 427.  
*Cucurbita moschata*, recommended as trap crop for *Diaphania*, 107.  
*cucurbitae*, *Dacus*; *Phloeophagosoma*; *Tetranychus*.  
Cultural Practices, influence of, on insect pests, 5, 15, 24, 25, 26, 28, 86, 116, 136, 137, 191, 230, 231, 316, 338, 340, 341, 342, 344, 362, 363, 366, 388.  
*Cupressus*, *Dyscinetus gagates* damaging seedlings of, in Argentina, 413.  
Cupric Compounds (see under Copper).  
Cuprous Oxide, as fungicide in mixed spray, 275.  
*Curculio elephas*, bionomics of, on chestnut in France, 290; larva of, 272.  
*Curculio nucum*, bionomics and control of, in Italy, 284; larva of, 272.  
*Curculio trifolii* (see *Apion*).  
Curculio, Plum (see *Conotrachelus nemuphar*).  
Curculio, Quince (see *Conotrachelus crataegi*).  
Currant, *Eulecanium corni* on flowering, in Britain, 310; *Tettigella viridis* damaging, in France, 225; pests of, in Moravia, 101; *Nematus ribesii* on, in Rumania, 286.  
*curvimaculatus*, *Chelonus* (*Chelonella*).  
*Cuscuta*, beet virus transmitted through, 426.  
Custard Apple (see *Annona squamosa*).  
*custator*, *Thyanta*.  
Cutworm, Army (see *Chorizagrotis auxiliaris*).



- Cutworm, Variegated (see *Peridroma saucia*).
- Cutworms, baits for, **97, 271**.
- Cyamopsis psoraloides*, Jassids on, in Punjab, **31**.
- cyarella*, Lema.
- Cycas revoluta*, *Aonidiella inornata* on, in Hawaii, **323**.
- Cyclohexanol, use of, in DDT emulsion concentrates, **221**.
- Cyclohexanone, as solvent for DDT, **85** ; in DDT aerosol formulae, **253, 255, 405, 412** ; uses of, with other insecticides, **255, 299**.
- Cycloneda sanguinea*, in Brazil, **77** ; predacious on *Aphis gossypii* in Peru, **76** ; parasite of, **76, 77**.
- Cydia coniferana*, on *Pinus pinaster* in Portugal, **333**.
- Cydia dorsana*, on peas in Moravia, **101**.
- Cydia funebrana*, on plum in Czechoslovakia, **100, 101**.
- Cydia molesta* (Oriental Peach Moth), in Canada, **98, 184** ; in U.S.A., **54, 199, 251, 257, 258, 323, 356, 403** ; in Victoria, **159** ; on quince, **199** ; factors inducing diapause in, **54** ; parasites and biological control of, **258, 356** ; baits for, **403** ; tests and use of insecticides against, **98, 159, 184, 199, 251, 257, 258** ; fumigation of fruit and fruit-boxes against, **323**.
- Cydia nigricana* (on peas), insecticides against, in Quebec, **12** ; parasites and biological control of, in Washington, **297, 300** ; on *Lathyrus* and vetches, **300**.
- Cydia pomonella* (Codling Moth), in S. Africa, **142** ; in Algeria, **196** ; in Australia, **158, 160, 246, 317, 368, 369** ; in Canada, **33, 98, 336** ; in Chile, **20** ; in Czechoslovakia, **100, 101** ; in France, **138, 195, 196** ; in Italy, **380** ; in New Zealand, **64** ; in Palestine, **273** ; in Switzerland, **145** ; in U.S.A., **80, 81, 82, 83, 113, 115, 131, 179, 257, 264, 267, 318, 320, 334, 400, 401, 406, 407** ; on pear, **20, 113, 145, 160, 195, 196, 257, 336, 368** ; on quince, **20, 196** ; on stone fruits, **142, 145, 195, 196** ; on walnut, **20, 115, 145, 195** ; oviposition habits of, **98, 195** ; resistance of, to cold, **334** ; other bionomics of, **195, 196** ; differences in bionomics of, on pear and apple, **336** ; baits for studying activity of, **195, 246, 407** ; planting early maturing varieties of apple against, **179** ; dusts against, **81, 82** ; sprays against, **20, 33, 64, 80, 81, 82, 83, 98, 113, 115, 138, 142, 145, 158, 160, 196, 246, 257, 264, 267, 273, 317, 318-320, 336, 368, 369, 400, 401** ; laboratory tests of insecticides against, **98, 126, 183, 184, 264, 370, 409** ; sprays against mature and overwintering larvae of, **33, 80, 98, 131, 369, 370, 406, 407** ; effect of sublethal doses of dinitro-o-cresol on, **406** ; other measures against, **33, 138, 142, 196, 267** ; reasons for difficulties in controlling, **267**.
- Cydia splendana*, bionomics of, on chestnut in France, **290** ; in acorns, **290**.
- Cydia splendana* var. *reaumurana*, **290**.
- Cylloceria histronicus*, predacious on *Tortrix viridana* in Central Europe, **331**.
- Cyllene, Newm. (see *Megacyllene*).
- Cynaëus angustus*, in cereal products in Saskatchewan and U.S.A., **99**.
- Cynara* (see *Artichoke*).
- Cynodon dactylon*, Cercopid on, in Brazil, **86** ; new Coccid on, in Sudan, **68**.
- cynodontis*, *Morrisoniella* (*Rhizococcus*).
- cyperi*, *Athesapeuta*.
- Cyperus bifax*, risk to, of liberating insects against *C. rotundus* in Australia, **220**.
- Cyperus rotundus*, risk of liberating insects against, in Australia, **220**.
- Cypress (see *Cupressus*).
- Cypress, Southern (see *Taxodium distichum*).
- Cypress Pine (see *Callitris glauca*).
- Cyprus, *Lasioplera berlesiana* in, **286**.
- Cyrtopeltis varians* (see *Engylytus geniculatus*).
- Cyrtorhinus mundulus*, feeding on eggs of *Perkinsiella vitiensis* in Fiji, **43**.
- Czechoslovakia, forest pests in, **27, 28, 101, 329, 331** ; miscellaneous pests in, **100-104** ; pests of poppy in, **100, 101, 102, 329** ; beneficial insects in, **329, 330, 331**.
- Czenspinksia lordi*, sp. n., bionomics of, on apple in Nova Scotia, **411**.

## D.

- Dacnusa gracilis* (*postica*), bionomics of, parasitising *Psila rosae* in Britain, **213, 214** ; DDT spray affecting, **214**.
- Dactylis glomerata*, *Elachista gangabella* on, in Italy, **378**.
- dactylopii*, *Leptomastix*.
- Dactylopius*, introduction of, into S. Australia against *Opuntia*, **415**.
- Dacus cucumis*, bionomics and control of, on cucurbits and tomatoes in Queensland, **275**.
- Dacus cucurbitae*, in Hawaii, **66, 67** ; on tomato, **66** ; experiments against, **67**.

- Dacus ferrugineus tryoni*, campaign against, in S. Australia, 415 ; host fruits and control of, in Queensland, 222, 246 ; *Citrus* fruits not infected with bacteria from, 246.
- Dacus oleae* (on olive), in Italy, 285, 286, 379 ; in Portugal, 155, 156 ; in Spain, 150, 151 ; on *Elaeagnus angustifolia*, 379 ; bionomics of, 156, 379 ; natural enemies and biological control of, 285, 286 ; baits for, 150, 151 ; other measures against, 155, 156.
- Dacus passiflorae*, parasite of, in Fiji, 43.
- Dahlbomius fuscipennis*, utilisation of, against *Gilpinia hercyniae* in Nova Scotia, 302.
- Dakota, North, potato pests in, 228, 229 ; *Mayetiola destructor* on wheat in, 232.
- Dalbergia sissoo*, *Aonidiella orientalis* on, in India, 323.
- Dalo (see *Colocasia*).
- Dasyneura ignorata*, on lucerne in Moravia, 101.
- Dasyneura leguminicola*, on clover in Moravia, 101.
- Dasyneura papaveris*, on poppy in Moravia, 101.
- Dasyscapus parvipennis*, establishment of, against *Selenothrips rubrocinctus* in Trinidad, 89.
- Datana integerrima*, DDT ineffective against, on pecan in Texas, 54.
- Date Palm, *Aonidiella orientalis* on, in Cuba, 323.
- Dates (see Fruit, Dried).
- Datura*, *Tetranychus* on, in U.S.A., 180.
- D-D Mixture (1,2-Dichloropropane and 1,3-dichloropropene), against wire-worms, 117 ; and anhydrous ammonia, 117.
- DDD [2,2 - bis(p - chlorphenyl) -1,1 - dichloroethane], experiments with, as an insecticide, 229, 252, 253, 262, 404 ; Rhothane containing, 404.
- DDT, 308 ; against Aleurodids, 67, 69 ; against Aphids, 64, 69, 83, 92, 111, 113, 115, 120, 121, 158, 159, 166, 167, 184, 211, 212, 217, 219, 252, 253, 254, 255, 256, 258, 259, 299, 310, 398, 400, 421 ; effect of medium on toxicity of, to Aphids, 167 ; reproduction by Aphids treated with, 167, 256, 400 ; favouring infestation by Aphids, 47, 166, 263, 317, 398, 404 ; against Cercopids, 48, 141, 199, 393 ; against Coccids, 69, 114, 158, 310, 355, 411 ; against Coreids, 120, 184, 262, 266, 275 ; against Jassids, 20, 69, 97, 98, 111, 114, 158, 162, 229, 243, 262, 264 ; against Lygaeids, 127, 128, 159, 185, 217, 243, 364, 394, 395, 416 ; against
- Mirids (Capsids), 27, 32, 44, 46, 47, 52, 87, 98, 110, 111, 114, 176, 180, 181, 398 ; against Pentatomids, 46, 47, 93, 111, 159, 176, 180, 181, 243, 245, 275, 305, 306, 316 ; against Tingids, 69, 405 ; against other Hemiptera, 184, 203, 292, 340 ; against ants, 92, 115, 161, 178, 411 ; against Coleoptera, 6, 26, 27, 35, 44, 53, 56, 64, 68, 69, 70, 97, 98, 111, 114, 115, 120, 143, 145, 146, 147, 154, 158, 166, 173, 178, 183, 200, 211, 218, 229, 230, 251, 252, 254, 257, 262, 265, 266, 272, 274, 292, 297, 299, 303, 304, 305, 310, 337, 358, 367, 372, 381, 384, 391, 394, 398, 401, 404, 405, 420, 427 ; against Diptera, 25, 67, 93, 96, 97, 98, 113, 115, 167, 173, 211, 214, 223, 242, 244, 257, 263, 297, 298, 366, 415 ; against *Forficula auricularia*, 310, 411 ; against Lepidoptera, 20, 33, 47, 48, 54, 64, 67, 69, 70, 78, 81, 82, 83, 89, 93, 97, 98, 99, 107, 108, 110, 111, 113, 115, 121, 145, 150, 158, 159, 160, 161, 166, 176, 178, 183, 198, 199, 200, 211, 217, 241, 242, 244, 246, 251, 253, 257, 258, 260, 263, 264, 265, 266, 274, 276, 277, 298, 309, 310, 317, 318, 319, 320, 328, 358, 360, 368, 369, 370, 372, 384, 386, 394, 397, 400, 401, 406, 407, 408 ; against Lepismids, 161, 178 ; against *Liposcelis divinatorius*, 266 ; against mites, 69, 83, 92, 98, 111, 113, 131, 158, 159, 193, 199, 242, 264, 310, 320, 362 ; increasing infestation by mites, 33, 82, 98, 111, 113, 131, 185, 246, 252, 257, 258, 263, 264, 317, 320, 369, 370, 398 ; against Orthoptera, 93, 120, 162, 245, 372, 417 ; against sawflies, 69, 145, 158, 160, 166 ; against termites, 162, 399 ; against thrips, 54, 69, 98, 99, 111, 112, 113, 114, 211, 231, 242, 245, 252, 364, 370 ; effect of, on insect parasites and predators, 69, 82, 98, 111, 113, 158, 211, 258, 310, 317, 372, 398 ; risks of, to honey-bees, 109, 159, 177, 219, 298, 310, 381 ; use of, against bees, 55, 93 ; mode of action of, on insects, 58, 203, 204 ; penetration of, into eggs of *Polia oleracea*, 328 ; comparison of action of other compounds and, on insects, 57, 96, 119, 120, 166, 167, 292 ; effect of, on earthworms, 358, 405 ; duration of effectiveness of, on plants, 48, 52, 55, 64, 81, 98, 112, 114, 211, 218, 219, 242, 245, 246, 255, 256, 257, 262, 266, 328, 382, 386, 394 ; materials preventing penetration of solutions of, into plants, 123, 124, 220 ; effect of rainfall on deposits of, 93 ; duration of toxicity of, on other surfaces, 48, 212, 218, 292, 391 ; light



reducing toxicity of deposits of, 177 ;  
 irritant increasing efficiency of  
 deposits of, 292 ; particle size and  
 efficiency of deposits of, 319 ; question  
 of fungicidal action of, 264 ; and  
 injury to plants, 20, 32, 83, 93, 111,  
 113, 114, 115, 158, 159, 212, 217, 252,  
 254, 257, 262, 264, 319, 328, 329, 358,  
 370, 372, 394, 401, 404 ; germination  
 of seeds treated with, 115, 305 ;  
 influence of, on fermentation of grape  
 juice, 185 ; residues of, on fruits, etc.,  
 110, 113, 115, 320 ; residue tolerance  
 for, in U.S.A., 110 ; question of  
 risks of, to man, other mammals and  
 birds, 35, 93, 158, 177, 178, 190, 265,  
 304, 376, 428 ; effect of, on aquatic  
 fauna, 177, 376 ; in aerosols, 78, 253,  
 254, 255, 400, 405 ; tests of stability  
 of, in aerosol formulae, 412 ; fog  
 generators applying, 121, 255, 259,  
 260 ; smokes containing, 211 ; in  
 bands and barriers, 35, 127, 178 ; in  
 dusts, 32, 35, 44, 46, 47, 48, 52, 53,  
 54, 55, 56, 64, 67, 69, 81, 93, 97, 109,  
 110, 111, 112, 114, 120, 141, 143, 145,  
 146, 147, 158, 159, 160, 161, 162, 176,  
 177, 178, 180, 181, 184, 198, 199, 200,  
 211, 217, 218, 223, 229, 230, 231, 241,  
 242, 243, 244, 245, 252, 253, 254, 256,  
 262, 263, 266, 274, 276, 277, 297, 298,  
 299, 303, 304, 309, 310, 314, 318, 328,  
 337, 358, 364, 367, 370, 384, 386, 391,  
 393, 394, 395, 397, 398, 400, 404, 408,  
 411, 420, 421 ; carriers for, 32, 35,  
 46, 47, 48, 52, 53, 54, 67, 81, 112, 114,  
 120, 127, 159, 160, 162, 176, 184, 211,  
 217, 218, 223, 231, 252, 253, 254, 262,  
 266, 298, 309, 310, 318, 328, 370, 391,  
 394, 397, 398, 404, 408 ; adsorbed on  
 carriers, 35, 64 ; oil-impregnated  
 dusts of, 81, 254, 263, 393 ; other  
 solvents increasing efficiency of dusts  
 of, 254 ; in sprays, 6, 20, 25, 26, 27,  
 32, 33, 44, 47, 48, 53, 54, 55, 56, 64,  
 67, 69, 70, 81, 82, 83, 87, 92, 93, 98,  
 107, 108, 110, 111, 112, 113, 114, 115,  
 120, 131, 143, 145, 146, 147, 150, 154,  
 158, 159, 160, 161, 176, 177, 178, 183,  
 184, 185, 198, 200, 203, 211, 214, 217,  
 218, 219, 220, 221, 229, 231, 241, 242,  
 243, 244, 245, 246, 251, 252, 253, 254,  
 255, 256, 257, 258, 262, 263, 264, 265,  
 266, 274, 275, 292, 297, 298, 305, 306,  
 310, 314, 316, 317, 318, 319, 320, 328,  
 329, 355, 358, 360, 364, 367, 368, 369,  
 370, 372, 386, 391, 395, 397, 398, 400,  
 401, 405, 407, 411, 416, 421 ; vaporised  
 sprays containing, 111, 113, 114 ;  
 application of, from aircraft, 46, 99,  
 109, 177, 416, 417 ; seedlings dipped  
 in, 370 ; soil treatment with, 6, 35,  
 97, 158, 200, 223, 272, 367, 394, 399 ;

uses and disadvantages of, against  
 pests of stored products, 35, 78, 89,  
 305, 427 ; with acetone, 64, 108, 112,  
 120, 166, 184, 211, 253, 255, 328, 405 ;  
 with acetophenone, 85 ; with alcohols,  
 221 ; with aluminium naphthenate,  
 220 ; with aluminium stearate, 123,  
 124 ; with anisole, 85 ; with APS-202,  
 412 ; with Aroclor 1242, 85 ; with  
 benzene, 85, 166, 167, 211, 254, 257,  
 318, 391, 407 ; with benzene hexa-  
 chloride, 217, 218 ; with Bordeaux  
 mixture, 27, 44, 81, 82, 83, 253, 254,  
 264, 306, 318, 319 ; with other  
 copper compounds, 70, 229, 253, 254 ;  
 with organic fungicides, 229, 264,  
 401 ; with calcium arsenate, 47, 52,  
 404 ; with Carbitol, 166, 167 ; with  
 carbon tetrachloride, 260 ; with  
 Cardolite, 113 ; with chlorbenzene,  
 85 ; with 4-chlor-2-methyl-phenol,  
 292 ; with cresylic acid, 85, 113, 221 ;  
 with cyclohexanol, 221 ; with cyclo-  
 hexanone, 85, 253, 255, 405, 412 ;  
 with derris, 166 ; with dinitro com-  
 pounds, 264, 318, 320 ; with dioleil  
 malate, 412 ; with dioxane, 85 ; with  
 ethyl benzoate, 85 ; with ethylene  
 dichloride, 258 ; with glyceryl mono-  
 oleate, 220, 221 ; with isophorone,  
 85, 412 ; with lead arsenate, 82, 199,  
 257, 264, 318, 319, 320, 401 ; with  
 lime-sulphur, 27, 70 ; with mesityl  
 oxide, 85 ; with methyl isobutyl  
 ketone, 85 ; with methyl naphthalenes  
 (see also with Velsicol preparations),  
 112, 253, 254 ; with methylene  
 chloride, 85 ; with solvent naphtha,  
 35, 158, 159, 162, 219, 223, 317, 369,  
 370, 372 ; with nicotine, 254, 257,  
 266, 318, 319, 320, 411 ; with  
 eucalyptus oil, 159, 221 ; with mineral  
 oils, 20, 27, 53, 67, 81, 82, 83, 85,  
 98, 110, 111, 112, 113, 114, 115, 121,  
 123, 124, 158, 159, 177, 178, 220, 231,  
 251, 252, 253, 255, 260, 263, 264, 265,  
 266, 267, 292, 298, 318, 319, 320, 328,  
 355, 358, 391, 397, 399, 412, 413 ;  
 clogging of spray apparatus by oil-wet  
 particles of, 319 ; with vegetable oils,  
 85, 87, 107, 177, 220, 318 ; with  
 orthodichlorobenzene, 85 ; with pine  
 distillates, 85 ; with propylene oxide,  
 412 ; with pyrethrum, 229, 260, 298,  
 412, 416 ; with rotenone, 113, 318 ;  
 with sabadilla, 141 ; with sulphur, 44,  
 46, 47, 52, 112, 114, 141, 176, 229, 262,  
 397, 398 ; fused with sulphur, 397 ;  
 with superphosphate, 158, 218 ; with  
 tar distillate, 85 ; with tetralin, 92,  
 124 ; with thiocyanate, 254, 364 ;  
 with toluene, 221 ; with tributyl  
 phosphate, 85 ; with trichlorethylene,



- 85 ; with  $\gamma$ -valerolactone, 85 ; with Velsicol preparations, 124, 184, 254, 258, 263, 405 ; with xanthone, 264 ; with xylene, 32, 48, 85, 120, 221, 253, 258, 397, 398 ; with zinc sulphate, 54, 266 ; wetting agents for, 35, 53, 64, 108, 111, 112, 113, 114, 177, 251, 386 ; powders used with, in sprays, 47, 54, 81, 82, 112, 114, 158, 182, 231, 252, 318, 319, 407, 411 ; comparison of solvents for, 85, 413 ; solubility of, at subzero temperatures, 413 ; emulsifiers for solutions of, 32, 48, 92, 114, 158, 167, 220, 221, 254, 259, 328, 407 ; preparation of emulsion concentrates containing, 220 ; proprietary preparations of, 20, 53, 55, 56, 70, 108, 127, 143, 145, 146, 147, 151, 154, 198, 223, 257, 266, 382, 383, 386 ; chemistry, determination and decomposition of, 110, 115, 151, 251, 412, 413, 428 ; question of reduction of demand for standard insecticides by, 265 ; review of data on, 304 ; residue of, as an insecticide, 262.
- DDT Analogues, tests of, on insects, 203 ; chemistry of bromine, 428. (See DDD.)
- decedens*, *Empoasca*.
- decemlineata*, *Leptinotarsa* (*Doryphora*).
- deciptens*, *Belonuchus*.
- decoratus*, *Rhizoecus* (see *R. falcifer*).
- dedecora*, *Macromphalia*.
- Deenate 25W, 257.
- Deer, question of effect of insecticidal dusts in forests on, 240, 241.
- defoliaria*, *Erannis* (*Hibernia*).
- Delaware, pests of beans in, 121, 122 ; potato pests in, 264.
- Delphastus pusillus*, predacious on *Aleurocanthus woglumi* in Mexico, 77.
- deltae*, *Coccus* (*Lecanium*).
- democraticus*, *Dichroplus*.
- Dendrocalamus* spp. (see Bamboo).
- Dendroctonus piceaperda*, on spruce in Nova Scotia, 301.
- Dendrol, 80.
- Dendrolimus pini*, on pine in Czechoslovakia, 101.
- Denmark, books on pests and diseases of crops in, 348, 380.
- denticornis*, *Limothrips*.
- Deobase, 119.
- Depressaria heracleana*, on parsnip in Br. Columbia, 34.
- depressum*, *Steirastoma*.
- Dermestes*, treatments against, infesting rabbit skins in Hawaii, 68, 266, 391.
- Dermestes ater* (*cadaverinus*), in imported ground-nuts in Canada, 30 ; bionomics of, in buildings in Connecticut, 361 ; infesting rabbit skins in Hawaii, 68, 391 ; measures and experiments against, 30, 68, 361, 391.
- Dermestes lardarius*, breeding round incinerators in U.S.A., 178 ; DDT against, 178.
- Dermestes maculatus*, infesting rabbit skins in Hawaii, 68, 391.
- Dermestes peruvianus*, in dried meat and sausage skins in Chile, 354.
- Dermestes vulpinus* (see *D. maculatus*).
- Dermolepida albohirtum*, measures against, on sugar-cane in Queensland, 28, 366, 367 ; parasite of, 29.
- derogata*, *Sylepia*.
- Derostenus*, parasite of *Agromyza niveipennis* in Italy, 378.
- Derris, against Aphids, 166, 248, 253, 254, 259, 300, 301, 392 ; against Coccids, 49, 114 ; against other Hemiptera, 51, 245, 392, 393 ; against Coleoptera, 13, 17, 35, 97, 122, 140, 143, 146, 166, 175, 303, 328, 358 ; against Diptera, 2, 366 ; against Lepidoptera, 12, 14, 64, 160, 166, 241, 242, 276, 358 ; against mole-crickets, 191 ; against sawflies, 166 ; influence of carriers on effectiveness of, 248, 392 ; dusting with, 12, 13, 14, 64, 97, 122, 146, 161, 242, 248, 276, 301, 303, 358, 392 ; carriers for, 12, 14, 35, 122, 242, 276, 301, 392 ; spraying with, 12, 13, 49, 51, 64, 114, 140, 143, 161, 241, 242, 245, 253, 254, 259, 276, 300, 301, 392, 393 ; adhesives and spreaders for, 140, 191, 253, 259, 276 ; stored products treated with, 17, 35, 241 ; formulae containing, 12, 35, 49, 64, 114, 140, 191, 253, 259, 276, 301, 392, 393 ; and DDT, 166 ; and nicotine, 12, 242 ; and oil emulsions, 12, 49, 51, 114, 392 ; intermediary solvents for extractives of, when used with oils, 49 ; rotenone contents of, 12, 14, 49, 51, 64, 114, 122, 140, 241, 253, 259, 301, 303, 358, 392, 393 ; other toxic constituents of, 14 ; translocation of constituents of, in bean plants, 175 ; other insecticides compared with, 161, 254, 259, 303, 428.
- Desert Locust (see *Schistocerca gregaria*).
- despectus*, *Oxycaenus*.
- destructor*, *Aspidiotus* ; *Glycyphagus* ; *Halotydeus* ; *Mayetiola* (*Phytophaga*) ; *Vasates* (*Phyllocoptes*).
- Detal, 239, 240.
- detectus*, *Iridomyrmex*.
- detorqueus*, *Technomyrmex*.
- Deutzia crenata*, recorded as winter food-plant of *Aphis fabae* in Holland, 39.
- devastans*, *Empoasca*.
- De Vilbiss Paint Sprayer, 182.

- Dewberry, *Anthonomus signatus* on, in U.S.A., 122.
- Dexia rustica*, parasite of *Melolontha melolontha* in Britain, 309.
- Dexicrates robusta*, in fruit trees in Chile, 354.
- Diabrotica duodecimpunctata*, in Canada, 98; in U.S.A., 84, 362, 404; damaging apples, 84; on cucumber, 404; bionomics and cultural control of, on maize, 362; insecticides against, 84, 98, 404.
- Diabrotica longicornis*, bionomics and control of, on maize in U.S.A., 362, 404.
- Diabrotica melanocephala*, in Canada, 98, 183; in U.S.A., 83, 404; insecticides against, 83, 98, 183, 404; transmitting bacterial wilt of cucurbits, 404.
- Diabrotica undecimpunctata*, tests of DDT against, in California, 111, 114.
- Diabrotica virgifera*, bionomics and control of, on maize in Nebraska, 362.
- Diabrotica vittata* (see *D. melanocephala*).
- Diacrisia investigatorum*, on cotton in Somalia, 226.
- Diadromus troglodytes*, parasite of *Tortrix murinana* in Germany, 72.
- Dialeurodes citri*, on gardenia and *Citrus* in Florida, 80; bionomics of, on *Citrus* in Punjab, 186, 187; measures against, 80, 188.
- Dialeurodes elongata*, bionomics of, in India, 186, 187.
- Diamond-back Moth (see *Plutella maculipennis*).
- Diamyl Phenol, not reducing effectiveness of derris extractives, 49.
- dianthi*, *Morrisoniella* (*Rhizococcus*); *Taeniothrips*.
- Diaphania* spp., bionomics and control of, on cucurbits in Brazil, 107.
- Diaprepes abbreviatus*, on sugar-cane in Barbados, 22.
- Diarthronomyia chrysanthemi* (*hypogaea*, auct.), legislation relating to, in Britain, 194.
- Diaspidiotus uvae*, bionomics and control of, on vines in Spain, 149.
- Diastase, pine impregnated with, for feeding termites, 333.
- Diatomaceous Earth, against pests in stored grain, 303; use of, in sprays against cocooning larvae of *Cydia pomonella*, 406, 407; as carrier for dusts, 247, 252, 301; effects of types of, as dust carriers, 248.
- Diatraea grandiosella*, bionomics and control of, on maize and sorghum in Oklahoma, 231.
- Diatraea saccharalis*, on rice in Argentina, 65; in Barbados, 22; in Brazil, 169; in Mexico, 387, 388; on maize in Peru, 76; natural enemies and biological control of, on sugar-cane, 22, 169, 387, 388; hyperparasites of, 169.
- Diatraea venosata* (see *Proceras*).
- Dibenzyl, action of, in cockroaches, 57.
- Dibrachys cavus* (*boucheanus*), hyperparasite of *Pieris brassicae* in Europe, 352.
- Dibutyl Phthalate, plants injured by, 221.
- Dichlorodifluoromethane, use of, for producing aerosols, 412, 413.
- Dichlor - diphenyl - dichlorethane (see DDD).
- Dichlor - diphenyl - trichlorethane (see DDT).
- Dichlorethyl Ether, soil fumigation with, against *Hydroecia immanis*, 200; and oil, treatment of maize ears with, against *Heliothis armigera*, 408.
- 1,2-Dichloropropane (see D-D Mixture).
- 1,3-Dichloropropene (see D-D Mixture).
- Dichocrocis punctiferalis*, on soy beans in Queensland, 243.
- Dichroplus*, species of, injurious in Chile, 19, 20.
- Dichroplus democraticus*, in Chile, 20.
- Dichroplus elongatus*, forms and variability of, in Chile, 20.
- Dichroplus maculipennis*, outbreak of, in Chile, 20, 354; natural enemies of, 20.
- Dichroplus porteri*, in Chile, 20.
- Dichroplus vittiger*, in Chile, 20.
- Dictyneis pulvinosa*, on vines in Chile, 354.
- dictyospermi*, *Chrysomphalus*.
- Dicyclohexylamine Salt, of dinitro-o-cyclohexylphenol (*q.v.*), 112, 181, 231, 264, 320.
- Diethylene Glycol Monoethyl Ether, in medium for testing insecticides, 166, 167.
- Diethylpiperonylamide, as synergist for pyrethrum marc, 123.
- diffentialis*, *Melanoplus*.
- difformis*, *Omorgus*.
- Digitalis purpurea*, new subspecies of *Aphis fabae* on, in Britain, 164; *Macrosiphum solani* overwintering on, in Maine, 230.
- Digitaria sanguinalis*, slightly affected by DDT, 252.
- Diglycol Laurate, insecticide droplets sampled on slides coated with, 417.
- Di-isobutyl Ketone, slightly reducing effectiveness of derris extractives, 49.
- dilatata*, *Phenacaspis* (*Chionaspis*).
- Dill, *Aphis ferruginea-striata* on, in Hawaii, 66; ring-spot virus transmitted to, by *Hyadaphis sii*, 172.

- Diloba coeruleocephala*, sprays against, on almond in Spain, **149**.
- Diloboderus abderus*, fungus infesting, in Argentina, **18**.
- Dimethyl Phthalate, plants injured by, **221**.
- Dimethyl-p-phenylenediamine, action of, in cockroaches, **58**.
- Dimmockia*, key to species of, of Ethiopian Region, **227**.
- Dimmockia somalica*, sp. n., possibly parasitic on *Acrocercops bifasciata* in Somalia, **227**.
- Dinitro Dry, **33**.
- Dinitro-o-cresol, against *Anthonomus pomorum*, **70**; against Aphids, **70, 201, 228, 421**; in barriers against *Blissus leucopterus*, **127, 128**; against Coccids, **33, 228**; against other Hemiptera, **34, 47, 70**; soil treatment with, against *Contarinia pyrivora*, **94**; against mature larvae of *Cydia pomonella*, **33, 80, 98, 131, 406, 407**; effect of sublethal doses of, on *C. pomonella*, **406**; against other Lepidoptera, **70, 201, 228, 233, 239**; against locusts, **163, 417, 418**; against *Paratetranychus pilosus*, **103, 199**; against *Venturia inaequalis*, **228**; applied from aircraft, **239, 240, 417**; dusting with, **47, 163, 239**; carrier for, **47**; as carrier for DDT dust, **318**; formulae for, in sprays, **33, 80, 94, 103, 131, 228, 406, 407, 417, 421**; and oil emulsions, **33, 80, 94, 98, 131, 406, 407**; and tar distillate, **201**; other agents in sprays containing, **33, 406, 407**; effect of pH on effectiveness of, **201**; salts of, **33, 70, 201, 228, 233, 251**; and injury to plants, **70, 80, 103, 131, 239, 240, 241**; question of risk of, to bees, **240, 241, 251**; birds and mammals not affected by, **128, 241**.
- Dinitro-o-cyclohexylphenol (in sprays), against Hemiptera, **33, 50, 262, 421**; against Lepidopterous larvae, **98, 108**; against mites, **181, 264, 320**; not of value against *Thrips tabaci*, **112, 231**; formulae containing, **33, 50, 108, 181, 231, 264, 421**; and DDT, **264, 320**; and oil emulsions, **50, 98**; wetting agents for, **33, 181**; salts of, **33, 50, 112, 181, 231, 251, 262, 264, 320**; toxicity of, to bees, **251**; and injury to plants, **181, 320**.
- Dinoderus*, measures against, in stored bamboos in India, **90-92**.
- Dinoderus brevis*, in stored bamboos in India, **90**.
- Dinoderus minutus*, measures against, in tea chests introduced into Chile from Ceylon, **355**; in stored bamboos in India, **90**.
- Dinoderus ocellaris*, in stored bamboos in India, **90**.
- Dioleyl Malate, in DDT aerosol formula, **412**.
- Dioryctria splendidella*, on *Pinus pinaster* in Portugal, **333**.
- Dioscorea* (see Yams).
- Diospyros ebenaster*, *Aleurocanthus woglumi* on, in Mexico, **77**.
- Diospyros kaki* (see Persimmon).
- Dioxane, as solvent for DDT, **85**.
- Diparopsis castanea* (on cotton), in S. Africa, **339**; Ishan cotton little damaged by, in Nigeria, **342**; in Nyasaland, **342**; seasonal incidence of, in S. Rhodesia, **339**; in Somalia, **226**.
- Diphenyl, action of, in cockroaches, **58**.
- Diphenylamine, in dust against *Hylemyia brassicae*, **299**; action of, in cockroaches, **57**.
- Diplocystis*, **63**.
- Diplodia pinea*, infesting pine cones in New Zealand, **418**.
- dipterophagus, *Thysanus*.
- Dirhinus excavatus* (*auratus*, *frequens*), synonymy of, **277**.
- dirhodum*, *Macrosiphum*.
- Dirphia amphinome* (see *Catocephala*).
- dirphiae*, *Apanteles*.
- discospilata*, *Eufidonia*.
- disjunctus*, *Popilius*.
- Disodium Ethylene Bis-dithiocarbamate (Dithane), spraying with, against *Epilachna varivestis*, **121**; insecticidal action of, when absorbed by plants from soil, **121, 359**; insecticides mixed with, against potato pests, **229**.
- dispar*, *Lymantria* (*Ocneria*, *Porthetria*).
- disparis*, *Ichneumon* (*Protichneumon*).
- dissolutus*, *Aphidius*.
- disstria*, *Malacosoma*.
- Distantiella theobroma*, on cacao in Gold Coast, **87, 88**; flight range of, **87**; proposed search for parasites of, **88**; sprays against, **87**.
- distincta*, *Heliothis virescens*.
- distinguenda*, *Empoasca*.
- Dithane (see Disodium Ethylene Bis-dithiocarbamate).
- $\beta, \beta'$ -Dithiocyanodiethyl Ether (see Thiocyanates).
- diva*, *Zygrita*.
- divinatorius*, *Liposcelis*.
- divisus*, *Macrosteles*.
- divulsana*, *Tortrix*.
- DN-111, **181, 231, 264**.
- Doclostaurus maroccanus*, failure to ascertain permanent foci of, in Spain, **153**.



Dock (see *Rumex*).  
 Dodder (see *Cuscuta*).  
 Dodecyl Sulphate, as an emulsifier, 167.  
 Dogwood (see *Cornus*).  
 Dolomite, against pests in stored beans  
 an cereals, 35, 245, 302, 303 ;  
 problem of dusty atmosphere from  
 use of, 303.  
*Dolycoris baccarum*, on cotton in Italy,  
 420.  
*domestica*, *Musca* ; *Thermobia*.  
*domesticus*, *Gryllulus*.  
*dominica*, *Rhizopertha*.  
*Domomyza* (*Agromyza*) *ambigua*,  
 bionomics of, in Scotland, 188.  
*Doralis* (see *Aphis*).  
*dorsana*, *Cydia* (*Grapholitha*).  
*Doryphora decemlineata* (see *Leptino-*  
*tarsa*).  
 Douglas Fir (see *Pseudotsuga taxifolia*).  
*downesi*, *Mallodon* (*Stenodontes*).  
 Downy Mildew (see *Pseudoperonospora*  
*cubensis*).  
*dracaenae*, *Parthenothrips*.  
*dregii*, *Calidea*.  
*Dreyfusia* (see *Chermes*).  
*Drosophila*, *Belonuchus rufipennis*  
 reared on, in Italy, 285.  
*Dryadula pactolia*, bionomics and  
 control of, damaging wine casks and  
 corks in Germany, 71.  
*dubia*, *Anomala*.  
*dubius*, *Mesoleius* ; *Pachycrepoides*.  
*duodecimpunctata*, *Crioceris* ; *Diabrotica*.  
 Dusts, use of oil-impregnated, 81, 199,  
 254, 263, 393 ; equipment for apply-  
 ing, 44, 200, 254, 303, 394 ; applica-  
 tion of, from aircraft, 28, 46, 109,  
 164, 213, 239, 240, 299, 331, 349 ;  
 sprays compared with, 231, 391 ;  
 machine for soil treatment with, 218 ;  
 (inert), use of, against pests of stored  
 products, 16, 17, 23, 35, 36, 245, 289,  
 302, 303 ; variations in structure of  
 insect cuticle influencing effectiveness  
 of, 203.  
 Dutch Elm Disease (see *Ceratostomella*  
*ulmi*).  
*Dyscinetus gagates*, on wheat and tree  
 seedlings in Argentina, 413.  
*Dysdercus* (Cotton Stainers), in S. Africa,  
 339 ; Ishan cotton little damaged by,  
 in Nigeria, 342 ; experiments against,  
 in S. Rhodesia, 340 ; in Tanganyika,  
 342 ; lists of species of, in W. Indies,  
 164.  
*Dysdercus cardinalis*, on cotton in  
 Tanganyika, 341.  
*Dysdercus fasciatus* (on cotton), in  
 S. Rhodesia, 340 ; in Tanganyika,  
 341 ; in Uganda, 340.  
*Dysdercus insularis*, on cotton in Fiji,  
 43.

*Dysdercus intermedius* (on cotton), in  
 S. Rhodesia, 340 ; in Tanganyika,  
 341.  
*Dysdercus nigrofasciatus* (on cotton), in  
 Tanganyika, 341 ; in Uganda, 340.  
*Dysdercus ruficollis*, on cotton in Peru,  
 75, 76 ; parasites and control of, 75.  
*Dysdercus supersticiosus* (on cotton), in  
 Tanganyika, 341 ; in Uganda, 340.

## E.

*Earias* (Spiny Cotton Bollworm), Ishan  
 cotton little damaged by, in Nigeria,  
 342 ; in S. Rhodesia, 339 ; in  
 Tanganyika, 341.  
*Earias biplaga*, parasite of, on cotton in  
 Somalia, 226.  
*Earias chlorana*, on *Salix viminalis* in  
 Czechoslovakia, 102.  
*Earias insulana* (on cotton), in Sicily,  
 419 ; parasite of, in Somalia, 226.  
 Earwigs (see *Forficula auricularia*).  
*Echinochloa crusgalli*, experiments with  
*Stenodiplosis panici* and, in U.S.S.R.,  
 346.  
*Echinochloa frumentacea*, resistance of,  
 to *Heteronychus sanctae-helenae* in New  
 South Wales, 191.  
*echinopus*, *Rhizoglyphus*.  
 Economic Entomology, books on, 40-42,  
 104, 170, 224, 227, 270, 308, 313, 348,  
 380 ; bibliography of, in Finland, 232.  
 Ecuador, new Coccids on coffee and  
 cacao in, 376 ; *Paramalocera ilinizae*  
 infesting *Eucalyptus*, etc., in, 18.  
*edwardsii*, *Phaesarcodeia*.  
*egena*, *Plusia*.  
 Egg, as emulsifier for oils, 107.  
 Egg Albumen, in bait for fruit-flies, 144.  
 Egg-plant (*Solanum melongena*),  
 restricted cultivation of, against *Dacus*  
*ferrugineus tryoni* in S. Australia, 415 ;  
*Mamestra brassicae* on, in Bulgaria,  
 385 ; *Eugaster loricatus* damaging, in  
 Eritrea, 308 ; *Leptinotarsa decem-*  
*lineata* on, in France, 422 ; pests  
 of, in Hawaii, 66, 67 ; pests of, in  
 Italy, 287, 288 ; *Tetranychus*  
*curcurbitae* on, in Punjab, 31 ;  
*Gnorimoschema operculella* on, in  
 Queensland, 160 ; *Empoasca lybica*  
 on, in Sudan, 293 ; *L. decemlineata*  
 on, in Switzerland, 289 ; *Gryllulus*  
*domesticus* on, in greenhouses in  
 U.S.S.R., 347 ; pests of, in U.S.A.,  
 300, 405 ; effect of DDT on, 93.  
*Elachertus lateralis*, parasite of *Mamestra*  
*brassicae* in Bulgaria, 385.  
*Elachista gangabella*, on *Dactylis*  
*glomerata* in Italy, 378.

- Elaeagnus angustifolia*, *Dacus oleae* on, in Italy, **379**.
- Elaeis guineensis*, Coleoptera in nuts of, in W. Africa, **90, 305**.
- Elasmus*, parasite of Tortricids in Italy, **282, 380**; parasite of, **282**.
- Elder, *Aphis sambuci* on, in Britain, **310**.
- Electric-magnetic Radiation (see Light and Ultra-violet Rays).
- elegantula*, *Erythroneura*.
- elephas*, *Curculio* (*Balaninus*).
- Eleusine*, question of spread of *Lygus* to cotton from, in Uganda, **340**.
- Eleusine coracana*, *Alphitobius* in stored, in Mysore, **16**; products of, in baits for locusts, **164**.
- Elgetol, **228**.
- elisus*, *Lygus*.
- elizabeta*, *Apatela* (*Apatela*) *interrupta*.
- ello*, *Erinnyis*.
- Ellopia fiscellaria lugubrosa* (see *Lambdina*).
- Elm, pests of, in Canada, **9, 412**; pests of, in Central Europe, **331**; pests of, in U.S.A., **34, 79, 356, 360**; investigations on *Ceratostomella ulmi* in, **356, 360**; effects of defoliation on, **359**.
- elongata*, *Dialeurodes*; *Morrisoniella* (*Rhizococcus*).
- elongatus*, *Dichroplus*.
- Elsinoe veneta*, sprays against, on raspberry in New Zealand, **61**.
- elutella*, *Ephestia*.
- Elymus condensatus*, Mirid on, in Utah, **125**.
- Emilia sonchifolia*, thrips and spotted wilt in, in Hawaii, **402**.
- Empoasca*, not transmitting yellow wilt virus of beet in Argentina, **426**; on lucerne in California, **111**; species of, infesting cotton in Punjab, **31**; on cotton in Tanganyika, **341**; killed by DDT, **111**.
- Empoasca abrupta*, dusts against, on potato in California, **114**.
- Empoasca alfalfae*, bionomics and control of, on lucerne in Queensland, **271**.
- Empoasca decedens*, on cotton in Italy and Sicily, **419**.
- Empoasca devastans*, on cotton in Punjab, **31**; relation of, to *Cyamopsis psoraloides*, **31**.
- Empoasca distinguenda*, reared on castor in Sudan, **293**.
- Empoasca fabae*, in Canada, **97**; in Queensland, **162**; in U.S.A., **122, 229, 262, 264, 358, 359**; on beans, **122**; on potato, **229, 262, 264, 358, 359**; on tomato, **162**; measures and experiments against, **97, 162, 229, 262, 264, 358, 359**.
- Empoasca facialis*, food-plants and erroneous records of, in Sudan, **292, 293**.
- Empoasca kerri* var. *motti*, food-plants of, in Punjab, **31**.
- Empoasca lybica* (*libyca*), on vines in Spain, **270**; bionomics of, on cotton, etc., in Sudan, **292, 293**; distribution of, in Africa, **292**; spray against, **293**.
- Empoasca maculata*, dust against, on cotton in Queensland, **243**.
- Empoasca minor*, on cotton in Punjab, **31**.
- Empoasca punjabensis*, on cotton in Punjab, **31**.
- Empoasca terrae-reginae* (in Queensland), bionomics and control of, on lucerne, **271**; on solanaceous crops, **243**.
- Empusa*, *Hylemyia coarctata* infested by fungus resembling, in England, **165**.
- Enarmonia caryana*, on pecan in Florida, **58**.
- Enarmonia woerberiana*, on fruit trees in Czechoslovakia, **100, 101**.
- Encarsia*, parasite of *Aleurothrixus howardi* in Argentina, **66**.
- Encarsia formosa* (parasite of *Trialeurodes vaporariorum*), in Britain, **69, 326, 327**; failure to establish, in Hawaii, **67**; effect of insecticide treatments on, **69, 327**.
- Encarsia partenopea*, parasite of *Bemisia tabaci* in Morocco, **427**.
- Endrosis lactella*, observations on, in Germany, **71, 72**.
- Engyrtatus geniculatus*, on tomato in Hawaii, **66, 67**; dusts against, **67**.
- ensigera*, *Agalliana*.
- Entomology, book on, **271**. (See Economic Entomology.)
- Entomophthora sphaerosperma*, infesting *Pieris brassicae* in Germany, **352**.
- Enzymes, effect of insecticides on activity of, in insects, **58, 204**.
- Eotetranychus* (see *Tetranychus*).
- Ephestia cautella* (in stored products), fumigation against, in Fernando Po, **38**; in Fiji, **43**; in Queensland, **273**.
- Ephestia elutella*, measures against, in stored cacao in Britain, **89**.
- Ephestia figulilella*, hot water treatment against, in imported peach stones in Ontario, **13**.
- Ephestia kuehniella*, fumigation against, in imported ground-nuts in Canada, **30**; in Switzerland, **384**; water balance of, in stored grain, **384**; hardening of cuticle of, **202**.
- Ephialtes inquisitor*, bionomics of, parasitising Lepidoptera in Germany, **73, 237**.
- Ephialtes irritator*, parasite of *Aegeria scitula* in Connecticut, **360**.

- Ephialtes pomorum*, parasite of *Anthonomus piri* in Switzerland, 69.
- Ephialtes roborator*, parasite of *Platyedra gossypiella* in Italy and Sicily, 420.
- ephippella*, *Argyresthia*.
- Epiblema tedella*, on spruce in Czechoslovakia, 101.
- Epicaula atomaria*, sprays against, on *Amarantus* in Brazil, 107.
- Epidiaspis betulae*, auct. (see *E. lepevii*).
- Epidiaspis lepevii* (on pear), spray against, in France, 196; in Moravia, 101.
- Epidola stigma*, outbreak of, on vines in France, 289.
- Epilachna similis* subsp. *tellinii*, bionomics and control of, on cereals in Abyssinia, 377, 378.
- Epilachna varivestis*, measures and experiments against, on beans in U.S.A., 13, 118, 121, 123, 175, 179, 247, 248, 359; bionomics of, 13.
- Epilachna vigintioctopunctata*, bionomics and control of, in Queensland, 274.
- Epilobium*, 147.
- Epitetranychus* (see *Tetranychus*).
- Epitragus similis*, predacious on Coccids in Argentina, 66.
- Epitrix cucumeris* (in U.S.A.), on potato, 229, 254, 262, 358, 359; on tomato, 358; experiments against, 229, 254, 262, 358, 359.
- Epitrix hirtipennis*, sprays against, on tobacco in N. Carolina, 52.
- Epitrix subcrinita* (on potato), in Br. Columbia, 43, 59; bionomics and control of, in Washington, 297.
- Epitrix tuberis* (Potato Tuber Flea-beetle), in Br. Columbia, 13, 43, 44, 59, 97; in U.S.A., 296, 297, 335; bionomics of, 44, 296, 297, 335; insecticides against, 44, 97, 297.
- equestris*, *Haplodiplosis*.
- Erannis defoliaria*, on oak and elm in Central Europe, 331.
- Erechthias fulguritella*, on pine in New Zealand, 418; parasite of, 418.
- eremocitri*, *Aonidiella*.
- Eretmocerus*, parasite of *Aleurocanthus husaini* in Punjab, 187.
- Eretmocerus paulistus*, parasite of *Aleurothrixus howardi* in Argentina, 66.
- Eretmocerus serius*, introduction of, against *Aleurocanthus woglumi* in Mexico, 77, 78, 387.
- Ergates faber*, bionomics of, in Germany, 332.
- Erica* spp., *Lasiocampa quercus* on, in France, 422.
- erineus*, *Eriophyes tristriatus*.
- Erinnyis ello*, insecticides against, on cassava in Brazil, 108.
- Eriobotrya japonica*, removal of fruits of, against *Dacus ferrugineus tryoni* in S. Australia, 415.
- Eriophyes avellanae* (see *Phytoptus*).
- Eriophyes gracilis* (see *Phyllocoptes*).
- Eriophyes pyri*, DDT ineffective against, on pear in California, 113; on apple in Moravia, 101.
- Eriophyes ribis*, on currants in Moravia, 101.
- Eriophyes tristriatus* var. *erineus*, on walnut in Moravia, 101.
- Eriophyes vaccinii*, sprays against, on blueberry in Massachusetts, 181.
- Eriophyes vitis*, on vines in Moravia, 101.
- Eriosoma lanigerum* (on apple), in Australia, 159, 246, 317, 370; in Czechoslovakia, 100, 101; in France, 421; in Italy, 382; in Palestine, 273; in U.S.A., 83; *Chrysoclista putripennella* favouring, 282; value of *Aphelinus mali* against, 273, 317; controlled by DDT, 83; DDT ineffective against, 159, 370, 421; DDT increasing infestation by, 246, 317; other insecticides against, 273, 421.
- Eriosoma lanuginosum*, methyl bromide against, on pear nursery stock in U.S.A., 323.
- Eritrea, *Gnorimoschema operculella* in, 135; miscellaneous pests in, 286, 308, 377; beneficial insects in, 136, 287.
- Ernobius mollis*, in building timbers in Sweden, 294.
- Erodium cicutarium*, *Atanus exitiosus* on, in Argentina, 426.
- Erromenus*, parasite of *Pristiphora abietina* in Germany, 331.
- eruditus*, *Cheyletus*.
- Erwinia carnegieana*, *Cactoblastis fernaldialis* associated with, in *Carnegiea gigantea* in Arizona, 168.
- erythrocephala*, *Acantholyda*; *Calliphora*.
- erythrogaster*, *Campsomeris*.
- Erythroneura*, DDT against, on vines in Canada, 98.
- Erythroneura comes*, *E. elegantula* recorded as, in California, 111.
- Erythroneura elegantula*, DDT against, on vines in California, 111.
- Erythroneura lubiae*, on cotton, etc., in Sudan, 293.
- Ester Salts, increasing injury to apple by lime-sulphur, 95.
- Estigmene chinensis*, in bamboo in India, 90.
- Ethyl Alcohol (see Alcohol).
- Ethyl Benzoate, as solvent for DDT, 85.
- Ethyl Caproate, in baits for *Popillia japonica*, 119, 261.



- Ethyl Formate, uses of, against pests of stored products, **128, 414**.
- Ethylene Bromhydrin, tests with, as soil fumigant against *Capnodis*, **215**.
- Ethylene Chlorhydrin, ineffective against *Capnodis*, **214**.
- Ethylene Dibromide, fumigation of soil and plants with, against Coleoptera, **117, 128, 129, 200, 215**; solutions and emulsions of, **117, 129, 200**; and anhydrous ammonia, **117**; and ethylene dichloride, **129, 200**.
- Ethylene Dichloride, tests and uses of, against pests of stored grain, **210, 211, 414**; fumigation of soil, plants and planting material with, against Coleoptera, **129, 200, 214, 215**; other fumigants used with, **129, 200, 210, 211, 414**; emulsions and solutions of, **129, 200, 214, 215**; emulsified solutions of DDT in, **258, 259**.
- Ethylene Glycol Ether of Pinene, of little value as a synergist for pyrethrum marc, **123**.
- Ethylene Glycol Monobutyl Ether, and trichlorethylene, as penetrant in spray against cocoons of *Cydia pomonella*, **406, 407**.
- Ethylmethyl Ketone Semicarbazone, of little value as a synergist for pyrethrum marc, **123**.
- Etiella zinckenella*, bionomics of, on soy beans and beans in France, **269, 270, 279, 280**; measures against, **280**.
- Euaresia aequalis*, factors affecting establishment of, against *Xanthium pungens* in Australia, **220**.
- eucalypti*, *Phylacteophaga*.
- Eucalyptus*, Dynastid destroying seedlings of, in Argentina, **413**; insects on, in Australia, **218, 222, 247**; *Cerambycid* in, in Ecuador, **18**; *Gonipterus scutellatus* on, in Mauritius, **2**; depletion of starch from trees of, to protect timber from *Lyctus*, **247**; *Stromatium barbatum* in timber of, **2**.
- Eucalyptus amplifolia*, *Baryopadus squalidus* on, in New South Wales, **6**.
- Eucalyptus dives*, emulsified solution of DDT in oil of, **221**.
- Eucalyptus fastigata*, termites attacking timber of, in Australia, **314**.
- Eucalyptus globulus*, Coleoptera on, in Argentina, **333, 334**.
- Eucalyptus macrorhyncha*, termites in, in Australia, **314**.
- Eucalyptus sideroxylon*, weevils causing bud-fall of, in New South Wales, **316**.
- Eucalyptus* Oil, emulsion of, against *Gryllotalpa*, **191**; emulsified solutions of DDT in, **159, 221**.
- eucerus*, *Habrocytus*.
- Eucharis grandiflora*, *Xanthopastis timais* on, in Brazil, **105**.
- Eucoila pelleranoi*, utilisation of, against fruit-flies in Argentina, **65**.
- Eufidonia discospilata*, food-plants of, in Canada, **269**; larva of, **269**.
- Eufidonia notataria*, on conifers in Canada, **268**; larva of, **269**.
- Eugaster* spp., bionomics and control of, in Eritrea, **307, 308**.
- Eugenia*, *Lonchaea pendula* on, in Brazil, **106**.
- Eugenia cauliflora* (see *Myrciaria*).
- eugeniae*, *Aonidiella*.
- Eugenol, in baits for insects, **119, 144, 260, 261**.
- Eulecanium corni*, little affected by DDT dust on flowering currant in Britain, **310**.
- Eulecanium coryli*, on fruit trees in Czechoslovakia, **100, 101**.
- Eulimneria*, parasite of *Acantholyda erythrocephala* in Germany, **349**.
- Eulimneria crassifemur*, **349**.
- Eulophus*, hosts of, in Italy, **282, 378**.
- Eulophus viridulus*, spread of, introduced against *Pyrausta nubilalis* in Ontario, **99**.
- euonymi*, *Aphis*.
- Euonymus*, *Hyponomeuta cognatellus* on, in Britain, **310**; as food-plant of Aphids, **39, 164, 380**.
- Euonymus japonicus*, black Aphids on, in England, **39**.
- Eupalus biscutum*, sp. n., on apple in Nova Scotia, **411**.
- Euphorus sahlbergellae*, parasite of Mirids in Gold Coast, **87**; parasite of, **87**.
- Euproctis fasciata*, on cotton in Somalia, **226**.
- Eurema* (see *Terias*).
- Eurygaster integriceps*, study on functional changes in, in U.S.S.R., **345**.
- eurytheme*, *Colias*.
- Eurytoma fellis*, on *Citrus* in Queensland, **246**.
- Eurytoma verbena*, parasite of *Platyedra gossypiella* in Somalia, **226**.
- Euschistus impictiventris* (in Arizona), reducing seed production of beet, **398**; on cotton, **46, 180, 181, 396**; natural enemies of, **396**; dusts against, **46, 180, 181**.
- Euschistus servus*, bionomics of, causing cat-facing of peaches in Virginia, **249, 250**.
- Euschistus tristigmus*, bionomics of, causing cat-facing of peaches in Virginia, **249, 250**.
- Euschistus variolarius*, bionomics of, causing cat-facing of peaches in Virginia, **249, 250**.

*Eutermes costalis*, damaging sugar cane in Barbados, **22**.  
*Eutermes exitiosus*, dusts against, in Australia, **162**.  
*Eutettix tenellus* (in U.S.A.), transmitting curly-top to beans, **396**; rodents favouring weed food-plants of, **337**; natural enemies of, **400**; not experimentally transmitting Argentine beet virus, **426**.  
*euthysticha*, *Peperita*.  
*Eutinobothrus brasiliensis*, tests of sprays against, on cotton in Brazil, **107**.  
*Eutrichosoma*, parasite of *Cryptobathys setarius* in Senegal, **427**.  
*Euxoa radians* (in Queensland), on *Araucaria* seedlings, **247**; bionomics and control of, on lucerne, **271**.  
*Euxoa segetum* (see *Agrotis*).  
*Euzophora nelliella*, bionomics and control of, on olive in Spain, **155**.  
*evanescens*, *Trichogramma*.  
*examinator*, *Pimpla* (see *P. turionellae*).  
*excavatus*, *Dirhinus*.  
*Exenterus*, parasite of *Gilpinia hercyniae* in New Brunswick, **9**.  
*Exenterus amictorius*, utilisation of, against *Gilpinia hercyniae* in Nova Scotia, **302**.  
*exigua*, *Laphygma* (*Caradrina*).  
*exitiabilis*, *Pseudococcus* (see *P. njalensis*).  
*exitiosa*, *Aegeria* (*Sanninoidea*).  
*exitiosus*, *Atanus*; *Eutermes*.  
*Exochomus quadripustulatus*, predacious on *Chermes cooleyi* in Britain, **308**.  
*Exorista nigripalpis* (see *Zenillia caesar* and *Z. confusionis*).  
*exsectoides*, *Formica*.  
*exuberans*, *Sarcophaga tuberosa*.  
Eye-Spotted Budmoth (see *Spilonota ocellana*).

## F.

*fabae*, *Aphis* (*Doralis*); *Empoasca*.  
*fabey*, *Ergates*.  
*facialis*, *Empoasca*.  
*fagi*, *Cryptococcus*.  
*falcifer*, *Rhizoecus*.  
*falciformis*, *Sarcophaga*.  
*farinae*, *Tyroglyphus*.  
*fasciata*, *Euproctis*.  
*fasciatus*, *Dysdercus*; *Habrocytus*; *Hercothrips*; *Oncopeltus*.  
*fasciculatus*, *Araecerus*.  
*fausta*, *Rhagoletis*.  
*fellis*, *Eurytoma*.  
*femoralis*, *Creontiades*; *Hercinothrips* (*Heliothrips*).  
*fenestralis*, *Sciara*.  
*fennica*, *Agrotis*.  
*Fenusa pusilla* (*pumila*), on birch in Nova Scotia, **302**.  
Fermate (see *Ferric Dimethyl Dithiocarbamate*).  
*fernaldialis*, *Cactobrosis*.  
Fernando Po, pests in, **36-38**.  
Ferns, *Pulvinaria floccifera* on, in N. America, **322**.  
Ferric Chloride, in spray against cocoons of *Cydia pomonella*, **407**.  
Ferric Dimethyl Dithiocarbamate, spraying and dusting with, against Coleoptera, **52, 337**; effect on *Epilachna varivestis* of beans from seed treated with, **359**; in mixed dusts and sprays, **52, 229, 401**.  
Ferric Oxide, effect of, on particle size in dust dispersants, **392**.  
*Ferrisia virgata*, possible vector of virus diseases of cacao in W. Indies, **89**.  
Ferrous Oxide, as "safener" for lead arsenate, **372**; effect of, on particle size in dust dispersants, **392**.  
*ferruginea-striata*, *Aphis*.  
*ferrugineus*, *Dacus* (*Chaetodacus*, *Strumeta*); *Laemophloeus*.  
*ferus*, *Nabis*.  
*ficifoliae*, *Lepidosaphes* (*Mytilococcus*).  
*ficorum*, *Gynaikothrips*.  
*Ficus aspera*, *Amblypelta lutescens* on, in Queensland, **276**.  
*Ficus benjamina*, thrips on, in Florida, **364**.  
*Ficus carica* (see *Fig*).  
*Ficus nitida*, insects on, in Spain, **152**.  
*ficus*, *Chrysomphalus*; *Lepidosaphes*.  
Field Plots, co-ordination of experiments in, **118**.  
*Fig*, *Saissetia oleae* on, in Argentina, **65**; *Graphidothrips stuardoi* on, in Chile, **354**; pests of, in Italy, **284, 287**; *Margaronia tolimnalis* on, in Queensland, **246**; *Lepidosaphes ficifoliae* on, in U.S.A., **114**.  
*Fig*, Rough-leaved (see *Ficus aspera*).  
*figuhilella*, *Ephestia*.  
Fiji, miscellaneous pests in, **43**; list of insect pests in, **294**; natural enemies and biological control of insects and plants in, **43**; *Aonidiella aurantii* intercepted on lemons in, **43**.  
*filiformis*, *Xylonomus*.  
*filipjevi*, *Sarcophaga* (*Blaesoxipha*).  
*finetarius*, *Aphodius*.  
Finland, bibliography of entomology in, **232**.  
Firebrat (see *Thermobia domestica*).  
Fireworm, Cranberry (see *Rhopobota naevana*).  
*fiscellaria*, *Lambdina* (*Ellopia*).

- Fish Oil, in sprays, **245, 356**.  
 Fish-meal, machine for destroying insects in fertilisers containing, **61**.  
 Flamethrower, against locusts, **170**.  
*flaminus, Homalotylus*.  
*flammea, Panolis*.  
*flava, Cosmophila*.  
*flaveola, Liriomyza (Agromyza)*.  
*flaveolatum, Agrypon*.  
*flavicauda, Polyblastus*.  
*flavicollis, Kaloterme (Caloterme)*.  
*flavilatera, Tomaspis*.  
*flavipes, Reticulitermes*.  
*flavus, Metaphycus (Aphycus)*.  
 Flax, *Mamestra brassicae* on, in Bulgaria, **385**; pests of, in Canada, **13, 97**; *Thrips lini* on, in Rumania, **286**; Tipulids on, in Scotland, **5**.  
 Flax Bollworm (see *Heliothis ononis*).  
 Flea-beetle, Potato (see *Epitrix cucumeris, E. subcrinita* and *E. tuberosa*).  
 Flea-beetle, Tobacco (see *Epitrix hirtipennis*).  
 Fleahopper, Cotton (see *Psallus seriatus*).  
*floccifera, Pulvinaria*.  
*flocculosa, Pterocomma*.  
*floralis, Hylemyia; Nemorilla*.  
 Florida, pests of fruit trees in, **80, 125, 322**; miscellaneous pests in, **58, 79, 171**; pests of pineapple in, **55, 56**; pests of ornamental plants in, **23, 80, 322, 364**; termites in, **399**.  
*floridanus, Stigmaeus*.  
 Flour, pests in, and their control, **99, 210**; in baits for *Thermobia domestica*, **50**; as carrier for dusts, **12, 247**; spray formula containing, **107**.  
 Flour Beetle (see *Tribolium confusum*).  
 Fluorine Compound (1908), tests with, as a fumigant, **425**.  
 Fog Generators, insecticides applied as aerosols from, **121, 255, 259**.  
 Forest Ant, Red (see *Formica rufa*).  
 Forest Pests, in Austria, **73, 331**; in Britain, **189, 222, 308, 309**; in Canada, **8, 9, 59, 99, 177, 268, 269, 301, 302, 412**; in Chile, **7**; in Czechoslovakia, **27, 101, 329, 331**; in Fernando Po, **37**; in Germany, **72, 73, 212, 223-241, 329, 330, 349**; in Mexico, **334**; in New Zealand, **418**; in Poland, **27, 28**; in Portugal, **333**; in Queensland, **246, 247**; in Switzerland, **202**; in Turkey, **39, 40**; key to injuries by, in U.S.S.R., **304**; in U.S.A., **34, 35, 48, 59, 79, 121, 177, 259, 269, 356, 360, 361**.  
 Forest Tent Caterpillar (see *Malacosoma disstria*).  
*forficalis, Mesographa (Pionea)*.  
*Forficula auricularia*, on clover in Britain, **310**; predacious on Lepidop-
- tera in Germany, **74, 352**; in Utah, **411**; measures against, **310, 411**.  
*Formica cinerea*, predacious on *Operophtera brumata* in Italy, **284**.  
*Formica exsectoides*, measures against, in Kentucky, **125**.  
*Formica fusca*, destroying *Chloroclystis rectangulata* in Switzerland, **383**.  
*Formica rufa*, destroying forest pests in Poland and Germany, **27, 74, 348**; need for protection of, **348**; study of subspecies of, **212**.  
*Formica rufa pratensis*, **212**.  
*Formica rufa rufa*, habits and question of mass rearing of, for use against forest pests, **212**.  
*Formica rufa rufo-pratensis*, question of rearing and use of, against forest pests in Germany and Czechoslovakia, **74, 212, 330**; habits and forms of, **212**; boars destroying nests of, **74**.  
 Formosa, Coccids on orange and papaya in, **322, 323**.  
*formosa, Encarsia*.  
*formosus, Belonuchus* (see *B. rufipennis*).  
*fornicator, Xyleborus fornicatus*.  
*Formica ceylonica*, hosts and parasites of, in Ceylon, **3**.  
*foveicollis, Aulacophora (Rhaphidopalpa)*.  
*foveiventris, Colaspoides*.  
 Fowls, suggested use of, against *Acantholyda piniivora*, **330**.  
 Foxglove (see *Digitalis purpurea*).  
*Fragaria vesca*, used in experiments with *Capitophorus fragariae* and strawberry viruses, **207**.  
*fragariae, Ancylis* (see *A. comptana*); *Capitophorus*.  
*fragilis, Apatela (Apatela)*.  
 France, *Etiella zinckenella* on beans and soy beans in, **269, 270, 279**; pests of chestnuts in, **290**; *Lasiocampa quercus* on *Erica* spp. in, **422**; orchard pests in, **138, 195, 196, 201, 224, 280, 290, 291, 313, 421**; insects on ornamental plants in, **17, 137, 322**; vine pests in, **278, 289**; Aphids and virus diseases of raspberry and potato in, **311, 312**; *Leptinotarsa decemlineata* in, **138, 291, 311, 313, 420, 422**; outbreak of *Locusta migratoria* in, **377, 423**; miscellaneous pests in, **137, 289, 421, 423**; Diptera parasitising honey bees in, **420**; natural enemies of insect pests in, **278, 422, 423**; precautions against introduction of pests into other countries from, **146, 194**.  
 Frangipani (see *Plumeria*).  
*frangulae*, auct., *Aphis* (see *A. gossypii*).  
*Frankliniella bratleyi*, on *Polianthes tuberosa* in U.S.A., **23**.



- Frankliniella helianthi*, sprays against, on peas in California, **113**.  
*Frankliniella occidentalis*, DDT dust against, on cotton in California, **111**.  
*Frankliniella paucispinosa*, food-plants of, transmitting virus disease of tobacco in Argentina, **65**; experiments against, **65**.  
*Frankliniella sulphurea*, in Hawaii, **66**, **402**; on lima beans, **66**; not transmitting spotted wilt to *Emilia*, **402**.  
*fraterculus*, *Anastrepha*.  
*fraudulentus*, *Lygus*.  
*Fraxinus* (see *Ash*).  
*frenchi*, *Coptotermes*; *Lepidiota*.  
Freon-12 (see *Dichlorodifluoromethane*).  
*frequens*, *Dirhinus* (see *D. excavatus*).  
Friarite, as carrier for dust, **47**, **67**, **112**, **299**.  
*frit*, *Oscinella*.  
*frugalis*, *Mocis* (*Remigia*).  
*frugiperda*, *Laphygma*.  
Fruit, Dried, pests in, and their control, **128**, **210**, **324**.  
Fruit Tree Leaf Roller (see *Tortrix argyrosbila*).  
Fruit-worm, Cranberry (see *Mineola vaccinii*).  
*frustralis*, *Loxostege*.  
*fulguritella*, *Erechthias*.  
*fuliginosus*, *Gymnosoma*.  
*fuliginosus*, *Stenocarus*.  
*fullonia* (*fullonica*), *Othreis* (*Ophideres*).  
*fulvicornis*, *Hoplocampa* (see *H. minuta*).  
*fulvipes*, *Hemiteles* (see *H. nanus*); *Xenoschesis*.  
*fumiferana*, *Harmologa* (*Archips*).  
Fumigants, sorption of, by insects, **57**; micro-determination of sorption of, by products, **336**; apparatus for testing, **304**, **424**; equipment for applying: to ants' nests, **413**; to fumigation tents, **227**; to railway cars, **30**; to pineapple planting material, **55**; to soil, **10**, **117**.  
*funebrana*, *Cydia* (*Grapholitha*).  
Fungi, Entomogenous, **18**, **27**, **35**, **51**, **63**, **86**, **165**, **242**, **278**, **283**, **284**, **352**, **360**, **405**, **427**.  
Fungi, Injurious, **52**, **61**, **62**, **88**, **95**, **99**, **160**, **228**, **229**, **253**, **264**, **267**, **275**, **289**, **302**, **313**, **367**, **383**, **384**, **412**, **418**, **419**; relation of insects to, **40**, **106**, **138**, **168**, **186**, **193**, **282**, **286**, **302**, **332**, **337**.  
*furax*, *Sbeilla*.  
*furcifer*, *Asynapta*.  
*furfura*, *Chionaspis*.  
*furfuracea*, *Pseudholophylla*.  
Furfural, ineffective as bait for *Rhagoletis cerasi*, **144**.  
Furniture, *Stromatium barbatum* in, **2**.  
Furniture Beetles, pamphlet on, **305**.  
Furs (see *Rabbit Skins*).  
*fusca*, *Formica*; *Lachnosterna* (*Phyllophaga*).  
*fuscatus*, *Polistes*.  
*fuscipennis*, *Aphytis*; *Dahlbominus* (*Microplectron*).  
Fustic, termites little affected by, **376**.
- ## G.
- Gabunia ruficoxis*, associated with *Bixadus sierricola* in W. Africa, **37**.  
*gagates*, *Dyscinetus*.  
*gahani*, *Pseudococcus*.  
*Galeopsis tetrahit*, source of infestation of potato by Aphids in Maine, **230**.  
*Galerucella luteola* (*xanthomelaena*), on elm in Canada, **412**; *Haltica ulmi* previously recorded as, **412**.  
*gallicola*, *Perisierola* (*Parasierola*).  
Gammexane,  $\gamma$  isomer of benzene hexachloride (*q.v.*), **6**, **158**.  
*gangabella*, *Elachista*.  
Garden Webworm (see *Loxostege similalis*).  
*Gardenia*, *Dialeurodes citri* on, in Florida, **80**.  
*Gargaphia solani*, aerosols against, on egg-plant and *Solanum carolinense* in Maryland, **405**.  
*Gasterocercodes brasiliensis* (see *Eutinobothrus*).  
*Gastrimargus musicus* (in Australia), bionomics and ecology of, **29**, **222**, **245**; natural enemies of, **29**, **245**; measures against, **29**, **245**, **367**.  
*gei*, auct., *Macrosiphum* (see *M. solanifolii*).  
Geigy **33**, **384**.  
Gelatin, in bait for fruit-flies, **144**; reducing fungicidal action of lime-sulphur, **95**.  
*gelechiae*, *Bracon* (*Microbracon*).  
*gelotopoeon*, *Thyreion*.  
*gemella*, *Oxyops*.  
*gemellata*, *Rossi*, *Chrysomela* (see *C. quadrigemina*).  
*geminata*, *Solenopsis*.  
*gemmatalis*, *Anticarsia* (*Thermesia*).  
*geniculatus*, *Engytatus*.  
*Geococcus*, revision of, **376**.  
*Geocoris pallens*, effect of DDT dust on, in California, **111**.  
*Geocoris sobrinus*, on artichoke in Chile, **355**.  
*Geocoris sonoraensis*, in Arizona, **396**; not attacking eggs of *Euschistus impictiventris*, **396**.  
Georgia, orchard pests in, **322**, **334**, **402**; thrips on tuberoses in, **23**.

- Geraniol, in baits for insects, **119, 260, 261, 408.**
- Geranyl Formate, attractive to *Anomala horticola*, **144.**
- germanica*, *Blattella* (*Phyllodromia*).
- Germany, forest pests in, **72, 73, 212, 233-241, 329, 330, 349**; beetles infesting timber in, **332, 350**; Tineids damaging wine casks and corks in, **71**; book on pests and diseases of vegetables in, **104**; bees poisoned by sprays against *Leptinotarsa decemlineata* in, **74**; beneficial insects in, **72, 74, 236, 237, 330, 331, 332, 348, 349, 351, 352**; hyperparasites and diseases of *Pieris brassicae* in, **351-353**; birds destroying insects in, **237, 348, 352**; attempted introduction of *Stethorus punctillum* into Chile from, **8.**
- Gesarol, **20, 70, 143, 145, 146, 147, 154, 198, 382, 383, 386.**
- Gesarol A3, **56.**
- Gesarol A-10, **127, 266.**
- Gesarol AK-20, **53.**
- Gesarol AK-40, **257.**
- Gesarol M-10, **108.**
- Gesarol SH-5, **55.**
- Gesarol Summer Oil, **56.**
- geyeri*, *Oiketicus*.
- gibberus*, *Gonipterus*.
- gibbicollis*, *Hadrobregmus*.
- gibbus*, *Bruchophagus*; *Thersilochus*.
- gifuensis*, *Macrocentrus*.
- Gilpinia hercyniae*, value and utilisation of disease and parasites of, on spruce in Canada, **9, 301, 302.**
- Gipsy Moth (see *Lymantria dispar*).
- Global, **387.**
- globocula*, *Morrisoniella*.
- globosa*, *Myiophasia*.
- glochinella*, *Keiferia*.
- glomeratus*, *Apanteles*.
- Glucose, influence of mixture containing, on growth of *Ergates faber*, **332.**
- Glue, in DDT sprays, **251, 265, 266.**
- Glyceryl Dioleate, as emulsifier for oils, **49.**
- Glyceryl Mono-oleate, in DDT emulsion concentrates, **220, 221.**
- Glycyphagus destructor*, ecology and relation of, to other mites, in stored grain in Britain, **209.**
- Glypta*, introduced into Washington from Br. Columbia against *Cydia nigricana*, **297.**
- Glypta haesitator*, introduced into Washington from Br. Columbia against *Cydia nigricana*, **297.**
- Glypta incisa*, characters distinguishing *G. murinanae* from, **72.**
- Glypta murinanae*, sp. n., bionomics of, parasitising *Tortrix murinana* in Germany, **72, 73.**
- Glyptoscelis squamulata*, insecticides against, on vines in California, **53.**
- GNB-A, **110, 112, 114.**
- Gnорimoschema operculella*, in Argentina, **66**; in Australia, **137, 160, 161, 162, 241, 242, 276, 316**; in Chile, **20**; in Eritrea, **135**; in Fiji, **43**; in France, **289**; in Spain, **152**; in U.S.A., **21, 115**; on egg-plant, **160**; on field potatoes, **66, 135, 136, 160, 161, 241, 276, 316**; on stored potatoes, **136, 152, 241, 289**; on tobacco, **43, 242**; on tomato, **137**; on other plants, **289**; parasites and biological control of, **20, 21, 136, 152, 162**; insecticides against, **115, 136, 160, 161, 241, 242, 276, 289**; inert dusts against, **241, 289**; fumigants against, **136, 289**; other measures against, **136, 316**; use of, for rearing *Macrocentrus ancylivorus*, **129, 174, 356, 409**; bacteria infecting, **129.**
- godmani*, *Pantomorus*.
- Gold Coast, pests and disease of cacao in, **87, 88, 89, 90**; parasite and proposed biological control of cacao Mirids in, **87, 88**; other pests in, **90.**
- Golf Greens (see Turf).
- gonagra*, *Leptoglossus*.
- goniaeoides*, *Pseudopachystylum*.
- Gonipterus gibberus*, on *Eucalyptus* in Argentina, **334.**
- Gonipterus scutellatus*, on *Eucalyptus* in Mauritius, **2.**
- gonostigma*, *Orgyia*.
- Gooseberry, pests of, in Moravia, **101.**
- Goryphus variibalteatus*, parasite of Braconids in Ceylon, **3.**
- gossypiella*, *Bucculatrix*; *Platyedra* (*Pectinophora*).
- gossypii*, *Aphis*.
- Gossypium* (see Cotton).
- gowdeyi*, *Haplothrips*.
- gracilis*, *Dacnusa*; *Phyllocoptes* (*Eriophyes*).
- Graeffea crouani*, on coconut in Fiji, **43.**
- Grain Beetle, Lesser (see *Rhizopertha dominica*).
- Grain Beetle, Rust-red (see *Laemophloeus ferrugineus*).
- Grain Bug, Say's (see *Chlorochroa sayi*).
- Gram (see *Cicer arietinum*).
- graminum*, *Stenothrips*; *Toxoptera* (*Rhopalosiphum*).
- Granadilla (see *Passiflora quadrangularis*).
- granaria*, *Calandra*.
- granarium*, *Trogoderma*.
- grandiosella*, *Diatraea*.
- grandis*, *Anthonomus*.
- granella*, *Tinea*.
- Grape Bud Beetle (see *Glyptoscelis squamulata*).

- Grapefruit, *Aleurocanthus woglumi* on, in Mexico, **77** ; Coccids on, in U.S.A., **324**.
- Grapes, influence of DDT on fermentation of juice of, **185**.
- Graphodothrips stuardoi*, on fig in Chile, **354**.
- Grapholitha dorsana*, *funebrana* and *molesta* (see *Cydia*).
- Grapholitha woebiana* (see *Enarmonia*).
- Grapholitha antennata*, on apple in Pennsylvania, **409**.
- Grapholitha grotei*, on apple in Pennsylvania, **409**.
- Grass, Bent (see *Agrostis*).
- Grass, Couch (see *Agropyrum repens*).
- Grass, Crab (see *Digitaria sanguinalis*).
- Grass, Giant Wild Rye (see *Elymus condensatus*).
- Grass, Kikuyu (see *Pennisetum clandestinum*).
- Grass, Timothy (see *Phleum pratense*).
- Grasses, pests of, in Britain, **165, 188** ; pests of, in Denmark, **348** ; *Heteronychus sanctae-helenae* damaging, in New South Wales, **190** ; *Oxycanus* spp. damaging, in New Zealand, **62, 63** ; new Coccid on, in Sudan, **68** ; pests of, in U.S.A., **125, 126, 250** ; locusts and grasshoppers damaging, **34, 217, 222, 245, 377** ; cereal and sugar-cane pests on, **15, 84, 86, 108**. (See Turf.)
- Grasshopper, Jola (see *Colemania sphenarioides*).
- Grasshoppers (see Locusts).
- Greengage, *Paramallocera ilinizae* in, in Ecuador, **18**.
- Greenhouse Leaf-tier (see *Phlyctaenia rubigalis*).
- Greenhouse Whitefly (see *Trialeurodes vaporariorum*).
- gregaria*, *Schistocerca*.
- Gretchena bolliana*, bionomics of, on pecan in Florida, **58**.
- Grevillea*, *Tenuipalpus obovatus* on, in Ceylon, **3**.
- grisescens*, *Lydella stabulans*.
- grotei*, *Grapholitha*.
- Ground-nuts, *Schistocerca gregaria* attacking, in Gold Coast, **90** ; little damaged by *Colemania sphenarioides* in Mysore, **15** ; *Stegasta bosquella* on, in Peru, **76** ; pests of, in Queensland, **315, 316** ; *Strigoderma arboricola* on, in U.S.A., **250**.
- Ground-nuts (Stored), insects in, **30, 216, 305**.
- Groundnut Oil Emulsions, against *Quadraspidotus perniciosus*, **291** ; in mixed sprays, **196**.
- Grylloides sigillatus*, predacious on *Aphanus littoralis* in Nigeria, **216**.
- Gryllotalpa* spp., soil treatment against, in New South Wales, **191**.
- Gryllulus domesticus*, predacious on *Aphanus littoralis* in Nigeria, **216** ; bionomics and control of, in U.S.S.R., **346, 347**.
- Guaiacol, unsatisfactory as timber preservative against termites, **375**.
- Guara (see *Cyamopsis psoraloides*).
- Guatemala, *Andrector atrofasciatus* in, **171** ; *Aonidiella comperei* in, **322** ; campaign against *Atta* in, **413** ; Mirid on *Cinchona* in, **22**.
- Guava (*Psidium*), *Pulvinaria psidii* on, in Ceylon and Florida, **322** ; *Indarbela quadrinotata* on, in India, **373**.
- Guesapon E, **223**.
- Guiana, British, *Calandra oryzae* in, **427** ; natural enemies and biological control of *Tomaspsis flavilatera* in, **427**.
- Guinea, Spanish, injurious Longicorns in, **36, 37**. (See Fernando Po.)
- gulosa*, *Myrmecia*.
- Gum Trees (see *Eucalyptus*).
- gurneyi*, *Coccophagus*.
- guttilosa*, *Austracris*.
- Gwalior, moths attacking *Citrus* fruits in, **374**.
- Gymnoproctus abortivus*, in Eritrea, **307**.
- Gymnosoma fuliginosum*, parasite of *Chlorochroa sayi* in California, **397**.
- Gynaikothrips ficorum*, bionomics and control of, on *Ficus nitida* in Spain, **152**.
- Gynaikothrips uzeli*, sprays against, on *Ficus benjamina* in Florida, **364**.
- Gypsum, as carrier for dusts, **64, 67, 180, 211, 299**.

## H.

- Habrobracon* (see *Bracon*).
- Habrocytus blunckii*, sp. n., parasite of *Apanteles glomeratus* in Germany and Poland, **352**.
- Habrocytus eucerus*, parasite of *Apanteles glomeratus* in Germany and Poland, **352**.
- Habrocytus fasciatus*, parasite of *Anthonomus piri* in Switzerland, **69**.
- Habrocytus poecilopus*, parasite of *Apanteles glomeratus* in Europe, **352**.
- Hadena trifolii*, on clover in Moravia, **101**.
- Hadrobregmus gibbicollis*, in timber in Washington, **267**.
- Haemanthus fascinator*, *Xanthopastis timais* on, in Brazil, **105**.
- Haematoxylin, termites little affected by, **375**.
- Haematoxylon campechianum*, haematoxylin obtained from, **375**.



- haemorrhoidalis*, *Heliothrips*.  
*haesitator*, *Glypta*.  
 Haiti, *Aonidiella comperei* on vine in, 322.  
*Halotydeus destructor*, treatments against, in pasture in S. Australia, 158.  
*Haltica ambiens* var. *alni*, on alder in Nova Scotia, 301.  
*Haltica ulmi*, recorded as *Galerucella luteola* in Canada, 412.  
*Haltichella*, parasite of *Bucculatrix* in U.S.A., 397.  
*Halticotoma valida*, bionomics and control of, on *Yucca filamentosa* in Maryland, 32.  
*Halyzia sedecimguttata*, predacious on *Bupalus piniarius* in Germany, 74.  
*hampei*, *Stephanoderes* (*Hypothenemus*).  
*Haplodiplosis equestris*, parasite of, on wheat in Italy, 378.  
*Haplonyx* spp., causing bud-fall of *Eucalyptus sideroxylon* in New South Wales, 316.  
*Haplothrips aculeatus*, on oats in Bohemia, 100.  
*Haplothrips gowdeyi*, on *Cordia interrupta* in Mauritius, 2.  
 Hares, favouring weed food-plants of *Eutettix tenellus* in Idaho, 337.  
*Harmoloba fumiferana*, forms of, on conifers in Canada, 8, 9, 99; factors affecting infestation by pine form of, in Minnesota, 79; measures against, 79, 99.  
*harpax*, *Sarcophaga tuberosa*.  
*Harporhynchus australis*, predacious on *Tyria jacobaeae* in Australia, 220.  
 Hawaii, miscellaneous pests in, 6, 66, 67, 323; insects infesting rabbit skins in, 68, 266, 391; thrips and spotted wilt in, 402; attempted biological control of *Trialeurodes vaporariorum* in, 67; *Trichogramma minutum* parasitising *Bactra truculenta* in, 220; insects attacking *Cyperus* introduced into Australia from, 220.  
 Hayricks, *Caradrina clavipalpis* in, in Scotland, 5.  
 Hazel (see *Corylus avellana*).  
 Heat, for accelerating development of *Cydia pomonella* in packing sheds, 33; treatment of cotton seed with, unnecessary against *Platyedra scutiger*, 273; (vapour), treatment of mangos with, against *Anastrepha ludens*, 117. (See also Solar Heat, Steam and Water, Hot.)  
 Heather (see *Calluna vulgaris* and *Erica* spp.).  
*hebetor*, *Bracon*.  
*hecabe*, *Terias* (*Eurema*).  
*Hedera helix*, *Aonidiella citrina* on, in California, 126.  
*hederae*, *Aspidiotus*.  
*helianthi*, *Frankliniella*.  
*Helianthus annuus* (see Sunflower).  
*Helianthus tuberosus*, *Euaresta aequalis* not feeding on, 220.  
*helichrysi*, *Anuraphis* (see *A. padi*).  
*Heliothis armigera* (*obsoleta*), in Australia, 42, 137, 244, 272, 316, 339, 371; in Brazil, 107; in Chile, 7; in Hawaii, 66; in Italy and Sicily, 419; in S. Rhodesia, 339; in Somalia, 226; in Tanganyika, 341, 342; in U.S.A., 47, 48, 94, 176, 363, 397, 398, 408; on cotton, 42, 47, 48, 176, 226, 244, 339, 341, 342, 397, 398, 419; on fruit trees, 371; on leguminous plants, 272, 316, 341, 363, 371; on maize, 66, 94, 107, 339, 341, 408; on sorghum, 244; on tomato, 66, 137, 244; migrations of larvae of, 42, 272; other bionomics of, 244, 272, 316; natural enemies of, 7, 226; sprays and dusts against, 47, 48, 107, 176, 244, 339, 372, 397, 398, 408; other measures against, 42, 272, 316, 408.  
*Heliothis ononis*, on flax in Saskatchewan, 13, 97.  
*Heliothis virescens distincta*, on tobacco in Argentina, 66.  
*Heliothrips femoralis* (see *Hercinothrips*).  
*Heliothrips haemorrhoidalis*, soil nitrogen affecting infestation of *Tetragonia* by, in Missouri, 56; on greenhouse plants in Moravia, 102.  
*Heliothrips rubrocinctus* (see *Selenothrips*).  
*Helvula undalis* (on crucifers), in Hawaii, 67; in Peru, 76; in Queensland, 242; insecticides against, 67, 242.  
*Helopeltis*, on cacao in Gold Coast, 87; on cotton in Tanganyika and Nigeria, 341, 342.  
*Helopeltis sanguineus*, on cotton in Nigeria, 342.  
*Helopeltis theivora*, 341.  
*helveticus*, *Otiorrhynchus* (see *O. anthracinus*).  
*helvolus*, *Metaphycus*.  
 Hematoxylin (see Haematoxylin).  
*hemerobiella*, *Coleophora*.  
*Hemerocampa leucostigma*, on shade trees in Nova Scotia, 302.  
*Hemerocampa vetusta*, DDT spray against, on apple and pear in California, 111, 113.  
*Hemiberlesia*, characters of, 322.  
*Hemiberlesia lataniae*, on avocado in Argentina, 65.  
*Hemiberlesia paucitatis*, systematic position of, 322.  
*Hemiberlesia rapax*, in Argentina, 65, 66; in Chile, 353, 354; on fruit trees, 65, 66, 353; on olive, 354; measures against, 353.

- Hemichionaspis minor* (see *Pinnaspis*).  
*hemipterus*, *Carpophilus*.  
*hemisphaerica*, *Saissetia* (see *S. coffeae*).  
*Hemiteles*, parasite of Braconids in Ceylon, 3.  
*Hemiteles areator*, hyperparasite of *Pieris brassicae* in Europe, 352.  
*Hemiteles bicolorinus*, hyperparasite of *Tortrix murinana* in Germany, 72.  
*Hemiteles fulvipes* (see *H. nanus*).  
*Hemiteles melanogaster*, hyperparasite of *Tortrix murinana* in Germany, 72.  
*Hemiteles nanus*, hyperparasite of *Pieris brassicae* in Europe, 352.  
*Hemiteles submarginatus*, hyperparasite of *Pieris brassicae* in Europe, 352.  
Hemlock (see *Tsuga*).  
Hemlock, Poison (see *Conium maculatum*).  
Hemp, *Dichroplis* on, in Chile, 19 ; *Pyrausta nubilalis* on, in Rumania, 286.  
*heracleana*, *Depressaria*.  
*Hercinothrips femoralis*, on greenhouse plants in Moravia and Rumania, 102, 286.  
*Hercotothrips fasciatus*, experiment with DDT dust and, in California, 111.  
*herculeanus*, *Camponotus*.  
*hercyniae*, *Gilpinia*.  
*hesperidum*, *Coccus* (*Lecanium*).  
*hesperius*, *Labops*.  
*hesperus*, *Lygus*.  
Hessian Fly (see *Mayetiola destructor*).  
*Heterobostrychus aequalis*, in tea chests imported into Chile, 355 ; in stored bamboo in India, 90 ; measures against, 90, 355.  
*Heteronychus sanctae-helenae* (in New South Wales), on maize, 190, 218, 372 ; on marigold, 35 ; on vegetables, 35, 191, 218 ; susceptibility of pasture plants to, 190, 191 ; soil treatments against, 35, 218, 272, 372 ; other measures against, 191.  
*Heteronyx brevicollis*, bionomics of, on ground-nuts in Queensland, 316.  
*Heteropelma calcator*, parasite of *Bupalus piniarius* in Germany, 74.  
*heteropneusticus*, *Coccophagus* (see *C. caridei*).  
Hexachlorocyclohexane (see Benzene Hexachloride).  
*Hexamera* spp., bionomics of, parasitising *Oxycaus cervinatus* in New Zealand, 62, 63.  
*Hibernia defoliaria* (see *Erannis*).  
*Hibiscus*, *Pulvinaria citricola* on, in Maryland, 322.  
*Hibiscus cardiophyllus*, *Platyedra gossypiella* on, in Texas, 50.  
*Hibiscus dongolensis*, *Platyedra gossypiella* on, in Somalia, 227.  
*Hibiscus esculentus*, *Empoasca lybica* on, in Sudan, 293.  
*Hibiscus mutabilis*, *Platyedra gossypiella* on, in Texas, 50.  
Hide Beetles (see *Dermestes*).  
*hilare*, *Acrosternum*.  
*hilaris*, *Aulacophora* (*Ceratia*).  
*Hippeastrum*, *Xanthopastis timais* on, in Brazil, 105.  
Hippuric Acid, ineffective as bait for *Rhagoletis cerasi*, 144.  
*hirtipennis*, *Epitrix*.  
*hirtus*, *Blissus* ; *Labops*.  
*histrio*, *Apomecyna* ; *Platylabus*.  
*histrionicus*, *Cyllocoris*.  
Hochberg-LaMer Aerosol Fog Generator, 259.  
*Hofmannophila pseudospretella*, observations on, in Germany, 71, 72.  
*Holcus lanatus*, *Domomyza ambigua* on, in Scotland, 188.  
Holland, winter food-plants of *Aphis fabae* in, 39.  
*Homalinotus*, measures against, on coconut in Brazil, 106.  
*Homalinotus coriaceus*, on coconut in Brazil, 106.  
*Homalotylus flaminus* (*mirabilis*), parasite of *Cycloneda sanguinea* in Peru and Brazil, 76, 77 ; synonymy of, 77.  
*Homoeosoma vagella*, bionomics and control of, on *Macademia ternifolia* in Queensland, 246.  
*Homona coffearia*, parasite of, on tea in Ceylon, 2.  
*homonae*, *Macrocentrus*.  
Honey, in baits for ants, 267, 371 ; in tartar-emetic spray against *Thrips tabaci*, 231.  
Hoop Pine (see *Araucaria cunninghami*).  
*Hoplocampa*, sprays against, on plum in Switzerland, 145.  
*Hoplocampa brevis*, bionomics and control of, on pear in Crimea and France, 197, 280.  
*Hoplocampa minuta* (*fulvicornis*), on plum in Moravia, 101.  
*Hoplocampa testudinea* (on apple), in Bohemia, 100 ; sprays against, in Britain, 95 ; in Connecticut, 357 ; in France, 195.  
Hops, pests of, in Czechoslovakia, 100, 101, 103 ; *Hydroecia immanis* on, in New York, 200.  
*Hormius*, parasite of *Bucculatrix* in U.S.A., 397.  
Hornworm, Tomato (see *Protoparce quinquemaculata*).  
*horticola*, *Anomala* (*Phyllopertha*).  
*hospes*, *Lygaeus*.  
House-flies (see *Musca domestica*).  
*howardi*, *Aleurothrixus*.

- Howardia biclavis*, on *Cordia interrupta* in Mauritius, **2**; on *Annona* in Queensland, **246**; spray against, on cacao in W. Indies, **89**.
- humanus*, *Pediculus*.
- Humidity, relations of locusts and grasshoppers to, **133, 134, 344**; relations of other insects to, **62, 71, 72, 104, 146, 312, 382, 409**.
- Humidity Chamber, use of desiccator as, **400**.
- humilis*, *Iridomyrmex*.
- hunteri*, *Sarcophaga*.
- husaini*, *Aleurocanthus*.
- hyacinthi*, *Rhizoglyphus* (see *R. echinopus*).
- Hyadaphis sii*, relation of, to virus diseases of celery, etc., in California, **171, 172, 173**.
- hyalinata*, *Diaphania*.
- Hyalopterus arundinis*, azobenzene ineffective against, on plum in Britain, **190**; on peach in Moravia, **101**.
- Hydnocarpus*, *Aonidiella* spp. on, in Uganda, **322**.
- Hydrangea*, *Tetranychus telarius* on, in Britain, **189**.
- Hydrangea hortensis*, new Coccid on, in California, **322**.
- hydrangeae*, *Pulvinaria*.
- Hydrochloric Acid, in dinitro-o-cresol spray formula, **406, 407**.
- Hydrocyanic Acid Gas, against Coccids, **6, 55, 227, 228, 290, 291, 353, 425**; against Aphids and *Trialeurodes* in greenhouses, **325, 326**; against *Gynaikothrips ficorum*, **152**; against pests of stored products, **38, 89, 268**; suggested against Tineids in wine-cellars, **71**; methods of generating and applying, **227, 290, 291, 325, 326**; types of fumigation tents for, **227, 228**; use of, at low temperatures, **268, 291**; technique and results of testing toxicity of, to insects, **403, 425**; study of sorption of, by house-fly pupae, **57**; absorption of, by stored cacao and soil, **38, 425**; and injury to plants and planting material, **55, 326**; effect of, on peach sprayed with Bordeaux mixture, **290, 291**. (See Calcium Cyanide.)
- Hydroecia immanis*, measures against, on hops in New York, **200**.
- Hydrogen Sulphide, effect on insects of, generated from lime sulphur, **58**.
- Hydroquinone, action of, in cockroaches, **57**.
- 1,2 - Hydroxyanthraquinone (see Alizarin).
- Hylastes ater*, precautions against, in replanting coniferous woodland in Britain, **222, 223**.
- Hylastes rufipes*, use of trap logs in surveys for, in Connecticut, **356**.
- Hylemyia antiqua*, on onion in Canada, **34, 97**; calomel dust against, **34**; DDT unsatisfactory against, **97**.
- Hylemyia brassicae* (on cabbage), in Bohemia, **100**; in Ontario, **97**; in Washington, **299**; effect of temperature changes on development of, **343**; measures against, **97, 299**.
- Hylemyia cilicrura*, bionomics and control of, damaging conifer seedlings in Washington, **298**.
- Hylemyia coarctata*, on cereals in Britain, **164, 188**; ecology and factors affecting abundance of, **164, 165**.
- Hylemyia floralis*, effect of temperature changes on development of, **343**.
- Hylobius abietis*, precautions against, in replanting coniferous woodland in Britain, **222, 223**.
- Hylotrupes bajulus*, in building and other timbers in Sweden, Latvia and Germany, **294, 350**; factors affecting nutrition of larvae of, in wood, **332, 350, 351**; precautions against, **350**.
- Hylurgopinus* (see *Hylastes*).
- Hymenia recurvalis*, insecticides against, on beet in Hawaii and Queensland, **6, 242**.
- hyoscyami*, *Pegomyia*.
- hyperici*, *Agrilus*; *Chrysomela*.
- Hypericum perforatum*, use of insects against, in Australia and New Zealand, **161, 220**; Coleoptera imported into California against, **161**.
- hypogaea*, auct., *Diarthronomyia* (see *D. chrysanthemi*).
- Hyponomeuta cognatellus*, dust against, on *Euonymus* in Britain, **310**.
- Hyponomeuta padellus malinellus*, on apple in Czechoslovakia and France, **101, 138**; baits attracting, in Switzerland, **145**.
- Hypothenemus* (see *Stephanoderes*).

## I.

- Icerya purchasi*, on *Citrus* in Argentina and Chile, **65, 353, 354**; in Barbados, **23**; value and use of *Rodolia cardinalis* against, **23, 65, 354**.
- Ichneumon disparis*, bionomics of, parasitising *Lymantria monacha* in Germany, **237**.
- Ichneumon irritator* (see *Ephialtes*).
- Ichneumon nigritarius*, parasite of *Bupalus piniarius* in Germany, **74**.
- Ichneumon pachymerus*, parasite of *Bupalus piniarius* in Germany, **74**.
- ictericus*, *Calliptamus*.



*idaei*, *Aphis*.

Idaho, *Eutettix tenellus* and curly top virus of beans in, 396; rodents favouring weed food-plants of *E. tenellus* in, 337; miscellaneous pests in, 230, 231, 297, 300; wireworms in, 116.

*ignorata*, *Dasyneura*.

*ikuthana*, *Osphilia*.

*ilinizae*, *Paramallocera*.

Illinois, orchard pests in, 80, 84;

*Thermobia domestica* in, 49.

*illitus*, *Neoborus*.

*illocata*, *Anthomyia*.

*illuminatella*, *Argyresthia*.

*immaculata*, *Scutigerella*.

*immanis*, *Hydroecia*.

*impictiventris*, *Euschistus*.

*incisa*, *Glypta*.

*inconsequens*, *Taeniothrips*.

*inconstans*, *Pyronota*.

*Indarbela quadrinotata*, on *Albizia* in Ceylon, 3; bionomics and control of, on fruit trees in India, 373.

India, insects damaging bamboo culms in, 90-92; pests of *Citrus* in, 186, 187, 373, 374; *Aonidiella orientalis* on *Dalbergia sissoo* in, 323; *Schistocerca gregaria* in, 198, 373; pests of stored grain in, 428; beneficial insects in, 90; pests imported into Canada in shelled ground-nuts from, 30. (See also under the various Provinces.)

Indian Meal Moth (see *Plodia interpunctella*).

Indiana, pests of apple in, 81-83, 84, 318, 320; pests of cucurbits in, 83; beneficial insects in, 320.

*indica*, *Margaronia* (*Phacellura*).

*indicum*, *Syntomosphyrum* (*Melittobia*).

*innotata*, *Osphilia ikuthana*.

*innumerabilis*, *Pulvinaria*.

*inornata*, *Aonidiella*; *Brachymeria* (*Neobrachymeria*).

*inquisitor*, *Ephialtes* (*Pimpla*).

*inscripta*, *Typlocyba* (see *Cicadella stellulata*).

Insect Cuticle, study on hardening of, 202; structure of, in relation to action of inert dusts, 203; factors affecting permeability of, by insecticides, 278; technique for testing permeability of, 277, 278.

Insecticides, tests of organic compounds as potential, 57, 58, 126, 409; industry problems relating to use of organic, 265; bibliography of plants and sources of, 428; factors affecting permeability of insect cuticle by, 278; technique of testing permeability of cuticle by, 277, 278; effect of, on enzyme activity in insects, 58,

204; analysis of results of tests of, 265, 279; leaf areas affecting rate of application of, 124; discussion of functions of colloids in, 389; review of recent developments in, 428.

Insects, study on distribution of, by air currents, 132; book on relations between micro-organisms and, 78; book on physiology of, 336; effect of insecticides on enzyme activity in, 58, 204. (See Insect Cuticle.)

*insignis*, *Macropsis*.

*instigator*, *Pimpla*.

*insulana*, *Earias*.

*insulare*, *Megymenum*.

*insularis*, *Dysdercus*.

*integerrima*, *Datana*.

*integriceps*, *Eurygaster*.

*intermedius*, *Dysdercus*.

*interpunctella*, *Plodia*.

*interrupta*, *Apatele* (*Apatela*).

*investigatorum*, *Diacrisia* (*Spilosoma*).

Iowa, pests of apple in, 400, 401; *Cynaesus angustus* in cereal products in, 99.

*Ipobracon*, parasite of *Diatraea saccharalis* in Brazil, 169.

*Ipomoea*, *Typophorus viridicyaneus* on wild species, of, in U.S.A., 391. (See Sweet Potato.)

*Ips sexdentatus*, bionomics of, on *Picea orientalis* in Turkey, 39, 40; relation of, to *Ceratostomella*, 40.

*Iridomyrmex*, baits for, in dwellings in New South Wales, 371.

*Iridomyrmex detectus*, measures against, in Australia, 161, 371.

*Iridomyrmex humilis* (in California), associated with Coccids on *Citrus*, 127; in houses, 53, 115; measures against, 53, 115.

Iris, *Otiorrhynchus ligustici* on, in France, 137.

Iron, effect of, on stability of DDT, 412, 413.

*irritator*, *Ephialtes* (*Ichneumon*).

*irrovata*, *Anticarsia*.

*Isaria militaris*, infesting *Aphonus castaneus* in Connecticut, 360.

Isobutylundecyleneamide, of little value as synergist for pyrethrum marc, 123.

1 - Isobutyryl - 2 - phenylhydrazine, toxicity of, to *Cydia pomonella*, 409.

*Isodon puncticollis* (see *Trissodon*).

Isophorone, as solvent for DDT, 85, 412.

Isopropyl Formate, fumigation of dried fruit packages with, against insects, 128.

Iso Valeric Acid, in baits for *Popillia japonica*, 261.

1 - Isovaleryl - 2 - phenylhydrazine, toxicity of, to *Cydia pomonella*, 409.

*italicus*, *Calliptamus*.

Italy, *Tetranychus telarius* on *Citrus*, etc., in, 287 ; pests of *Corylus* in, 282, 283, 284 ; cotton pests in, 419, 420 ; pests of graminaceous plants in, 378 ; pests of olive in, 285, 286, 379 ; orchard pests in, 201, 281, 282, 283, 285, 379, 380 ; *Leptinotarsa decemlineata* in, 288 ; miscellaneous pests in, 284, 285, 322 ; beneficial insects in, 282, 283, 284, 286, 287, 378, 380, 420 ; Staphylinid introduced into, against fruit-flies, 285 ; precautions against introduction of *Quadraspidiotus perniciosus* into Switzerland from, 146.

*Itionida* (see *Cecidomyia*).

*Itoplectis maculator* (parasite of *Tortrix* spp.), in Austria and Czechoslovakia, 331 ; in Germany, 72, 73 ; bionomics of, 73, 331.

*Itoplectis viduata*, bionomics of, parasitising *Lymantria monacha* in Germany, 237.

*Iva xanthifolia*, relation of *Epitrix tuberis* to, in Nebraska, 335.

Ivy (see *Hedera helix*).

*Ixora* spp., *Dialeurodes elongata* on, in Bihar, 187.

## J.

Jack Pine (see *Pinus banksiana*).

*jacobaeae*, *Tyria*.

*janata*, *Achaea*.

Japan, Coccids in, 322, 323.

Japanese Beetle (see *Popillia japonica*).

Japanese Millet (see *Echinochloa frumentacea*).

*japonica*, *Popillia*.

Jarring, to dislodge insects from trees, 84, 177, 197, 249, 250, 284.

*Jasminum humile* (Italian Jasmine), *Parlatoria oleae* on, in California, 114.

*javanus*, *Plaesus*.

*johnsoni*, *Ooencyrtus*.

*jocosatrix*, *Bombotelia*.

*jocosus*, *Oxycaenus*.

Jola Grasshopper (see *Colemania sphenarioides*).

*juglandicola*, *Chromaphis*.

*juglandis*, *Bracon* (*Habrobracon*) (see *B. hebetor*).

Jugoslavia, *Calandra granaria* in, 386 ; *Orphanina scutata* in, 137 ; *Pyrausta nubilalis* on maize in, 386.

*Juncus*, lack of, causing *Tettigella viridis* to oviposit in fruit trees, 224.

*juniperi*, *Pseudococcus*.

*juniperus* spp., *Pseudococcus juniperi* on, in U.S.A., 410.

## K.

Kaffir Apple (see *Aberia kaffra*).

Kainit, as soil dressing for grass damaged by *Anomala horticola*, 166.

Kale, pests of, in Britain, 208, 303, 304, 309 ; oviposition by *Hylemyia coarctata* in fields of, 165.

*Kalmia*, *Eufidonia discospilata* on, in Canada, 269.

*Kaloterms brevis*, determination of factors in resistance of timbers to, in Porto Rico, 375.

*Kaloterms flavicollis*, technique of rearing, 333.

Kansas, Chrysomelid on elm in, 34, 35 ; pests and pollinators of lucerne in, 363 ; Coccids on plum and *Juniperus* in, 322, 410 ; *Cynaesus angustus* in stored cereals in, 99 ; *Typophorus viridicyaneus* on sweet-potato, etc., in, 23, 391 ; *Mayetiola destructor* on wheat in, 23, 338 ; natural enemies of *Pseudococcus juniperi* in, 411.

Kaolin, mixed with stored cereals and pulses against pests, 17, 35, 36 ; as carrier for dusts, 14, 35, 154, 159, 160, 162, 176, 217, 218, 274, 275, 276, 309, 310, 328 ; effect of, in spray mixtures of DDT and oil, 319 ; types of, 36.

*Keiferia glochinella*, characters distinguishing *K. peniculo* from, 300.

*Keiferia lycopersicella*, characters distinguishing *K. peniculo* from, 300.

*Keiferia peniculo*, sp. n., on egg-plant in U.S.A., 300.

*kellyi*, *Sarcophaga*.

Kentucky, *Mayetiola destructor* on cereals in, 127 ; Elaterids in, 232 ; *Formica exsectoides* in, 125 ; orchard pests in, 318, 319, 402.

Kerosene, in baits for *Popillia japonica*, 119 ; uses of DDT in, 53, 85, 115, 123, 124, 178, 221, 267, 356, 358, 391, 397, 416 ; materials preventing penetration of plants by DDT in, 123, 124 ; sprays of other insecticides in, 16, 17, 119, 189, 190 ; treatment of bamboo culms with creosote or naphthalene and, against Coleoptera, 91, 92 ; plants injured by, 221.

*kerri*, *Empoasca*.

*khapra*, *Trogoderma* (see *T. granarium*).

Kieselguhr, in dust mixture, 310.

Kikuyu Grass (see *Pennisetum clandestinum*).

*kirkpatricki*, *Bracon* (*Microbracon*).

*Kleidotoma*, parasite of *Psila rosae* in Britain, 214.

*Kochia scoparia*, relation of *Epitrix tuberis* to, in Nebraska, 335.

*koehleri*, *Copidosoma*; *Macrosiphum* (see *M. solanifolii*).  
*kuehniella*, *Ephestia*.

## L.

*Labops* spp., damaging grasses in Utah, 125, 126.

*labradus*, *Zizeva* (*Zizeeria*, *Zizina*).

*Labrorychus prismaticus*, parasite of *Pyrausta nubilalis* in Canada, 139.

*lacerdae*, *Pachymerus*.

*lachesis*, *Campsomeres*.

*Lachnosterna* (White Grubs), destroying fruit-tree seedlings in Ontario, 97; crops damaged by, in Mexico, 334; tests of soil treatments against, 10, 97.

*Lachnosterna anxia*, in turf in Ontario, 10.

*Lachnosterna fusca*, in turf in Ontario, 10.

*Lachnosterna smithi* (see *Clemora*).

*Lachnus salignus*, on *Salix viminalis* in Czechoslovakia, 102.

*Lacon variabilis*, on sugar-cane in Queensland, 29, 367; measures against, 367.

*lactella*, *Endrosis*.

*lactis*, *Carpoglyphus*.

*Laemophloeus ferrugineus*, measures against, in stored cereals in Canada, 99; use of desiccator as humidity chamber for, 400.

*lahorensis*, *Prospaltella*.

*Lambdina athasaria pellucida*, spray against, on *Tsuga* in Connecticut, 356.

*Lambdina* (*Ellopia*) *fiscellaria lugubrosa*, disease of, in U.S.A., 51.

*lanigerum*, *Eriosoma* (*Schizoneura*).

*Lankesteria*, 63.

*Lantana camara*, use of *Teleonemia scrupulosa* against, in Australia, 161, 220, 247; use of *T. scrupulosa* against, in Fiji, 43; Aleurodids on, in Morocco, 427; failure to establish *T. scrupulosa* against, in Norfolk I., 220.

*lantanae*, *Coccomytilus*.

*lanuginosum*, *Eriosoma*.

*Laora variabilis*, *Podisus nigrolimbatus* experimentally attacking, in Chile, 7.

*lapathi*, *Cryptorrhynchus*.

*Laphygma exigua*, on cotton in Italy and Sicily, 419.

*Laphygma frugiperda*, on sugar-cane in Argentina, 65; on maize and grasses in Brazil, 108; on lucerne in Kansas, 363; on maize in Peru, 76; tests of DDT against, 108.

*laqueatellus*, *Crambus*.

Larch, *Orgyia antiqua* on, in Britain, 189; pests of, in Canada, 9, 301.

*lardarius*, *Dermestes*.

*laricella*, *Coleophora*.

*laricinellae*, *Chrysocharis*.

*larvarum*, *Comedo*.

*Lasiocampa quercus*, bionomics of, on *Erica* spp. in France, 422.

*Lasioderma serricorne*, fumigation of imported cottonseed meal against, in freight cars in Canada, 30.

*Lasioptera berlesiana*, bionomics of, in Italy and Cyprus, 286.

*Lasioptera rubi*, on raspberry in Moravia, 101.

*Lasius niger* var. *neoniger*, associated with Aphids in Utah, 125.

*Laspeyresia caryana* (see *Enarmonia*).

*Laspeyresia coniferana*, *nigricana*, *pomonella* and *splendana* (see *Cydia*).

*lataniae*, *Hemiberlesia*.

*lateralis*, *Elachertus*.

*Latheticus oryzae*, fumigation against, in bulk wheat in Victoria, 414.

*Lathyrus* spp., *Cydia nigricana* on, in Washington, 300.

*laticollis*, *Bryocoropsis*.

*laticornis*, *Neotachina*.

*latifrons*, *Sarcophila*.

*latro*, *Belonuchus*.

*latus*, *Anychus*.

Latvia, *Hylotrupes bajulus* in, 350; Aphids on potato in, 350.

Lauryl Alcohol, use of, in DDT emulsion concentrates, 221.

Lauryl Sulphate (see Dodecyl Sulphate).  
 Lauryl Thiocyanate, 51, 392. (See Thiocyanates.)

Lawns (see Turf).

Lead, residue of, on sprayed apples, 257.

Lead Arsenate, against pests of beet, 146, 147; against cereal pests, 244, 404; against cotton pests, 23, 43, 47, 244, 339; against pests of crucifers, 64, 67, 160, 162, 199, 242, 263, 299; against pests of cucurbits, 107, 243, 274, 275, 285; against pests of forest and shade trees, 35, 356; against pests of nut trees, 54, 246, 265, 266, 283; against orchard pests, 6, 20, 60, 64, 80, 81, 82, 83, 84, 95, 96, 98, 113, 142, 145, 150, 158, 160, 196, 199, 246, 257, 264, 273, 280, 281, 297, 317, 318, 319, 320, 336, 368, 369, 370, 372, 380, 401; against pests of small fruits, 61, 122; against pests of ornamental plants, 35, 105, 107; against pests of solanaceous plants, 136, 143, 154, 161, 291, 328; against vine pests, 145, 162, 198, 278, 279, 361; against pests on other plants, 12, 67, 107, 155, 221, 367; against pests in soil and turf, 13, 14, 99, 191, 200, 246, 250, 251, 363; increasing infestation by Aphids, 244, 263; bees poisoned by, 60, 281; bee repellents



- in spray containing, 60 ; action of, in cockroaches, 116 ; dusting with, 12, 47, 67, 84, 122, 146, 160, 162, 199, 211, 221, 242, 243, 244, 250, 251, 263, 274, 275, 299, 339, 363, 372, 404 ; carriers for, 67, 199, 274, 275 ; effect of carriers on efficiency of, 199, 243 ; oil-impregnated dusts of, 199 ; formulae for, in sprays, 12, 20, 35, 43, 54, 61, 64, 67, 81, 82, 95, 96, 105, 107, 136, 143, 145, 146, 150, 154, 155, 158, 196, 198, 244, 257, 264, 265, 266, 274, 278, 281, 283, 285, 317, 361, 363, 367, 369, 372, 401 ; adhesives and spreaders for, 82, 107, 244, 279, 281, 317, 339, 356, 360, 361 ; and aluminium oxide, 372 ; and Bordeaux mixture, 61, 80, 81, 196, 278, 279, 280 ; and other copper compounds, 155, 198, 275, 279 ; and calcium arsenate, 48 ; and clay, 155 ; and DDT, 82, 199, 257, 264, 318, 319, 320, 401 ; and ferric dimethyldithiocarbamate, 401 ; and ferrous oxide, 372 ; and lime, 257, 264, 372, 401 ; and lime-sulphur, 95, 96, 145, 369 ; and nicotine, 12, 64, 81, 160, 162, 196, 266, 273, 281, 369 ; and oils, 12, 20, 35, 81, 82, 107, 158, 196, 257, 265, 266, 317, 361, 369, 401 ; and Paris green, 105 ; and sulphur, 96, 122, 250, 251, 275, 319, 401 ; and zinc sulphate, 54, 266, 372, 401 ; and injury to plants, 14, 83, 84, 299 ; residues of, on fruit, 257 ; basic form of, 84, 142 ; effect of degree of dissociation of arsenical ions on toxicity of, 117 ; as standard in tests of potential insecticides, 126, 409.
- Leaf-cutting Ants (see *Atta*).
- Leafhopper, Beet (see *Eutettix tenellus*).
- Leafhopper, Potato (see *Empoasca fabae*).
- Lecanium corni* and *coryli* (see *Eulecanium*).
- Lecanium deltae* and *hesperidum* (see *Coccus*).
- lectularius*, *Cimex*.
- leguminicola*, *Dasyneura*.
- Lema cyanella*, on barley in Moravia, 101.
- Lemon, *Biprorulus bibax* on, in Australia, 245 ; pests of, in California, 141, 227, 355 ; *Chrysomphalus dictyospermi* on, in Chile, 353 ; not attacked by fruit-piercing moths in Gwalior, 374 ; *Tetranychus telarius* on, in Italy, 287 ; *Aleurocanthus woglumi* on, in Mexico, 77 ; *Tenuipalpus* on, in Spain, 149 ; *Aonidiella aurantii* intercepted on fruits of, in Fiji, 43.
- leperi*, *Epidiopsis*.
- lepida*, *Parasa*.
- Lepidaphycus bosqi* (see *Homalotylus flaminii*).
- Lepidiotia frenchi*, on sugar-cane in Queensland, 29, 367.
- Lepidiotia trichosterna*, soil fumigation against, on sugar-cane in Queensland, 367.
- Lepidosaphes beckii* (on *Citrus*), measures against, in Chile, 353 ; in Spain, 149.
- Lepidosaphes ficifoliae* (on fig), DDT sprays unsuccessful against, in California, 114 ; habits of, in Italy, 284, 285 ; considered a form of *L. ficus*, 284, 285.
- Lepidosaphes ficus*, habits of, on fig in Italy, 284, 285 ; *L. ficifoliae* considered a form of, 284, 285.
- Lepidosaphes ulmi* (on apple), in Moravia, 101 ; spray against, in New York, 228 ; new mites overwintering under, in Nova Scotia, 411, 412.
- Lepisma saccharina*, DDT against, 178.
- Leptinotarsa decemlineata* (Potato Beetle), 173 ; in Austria, 380 ; in Britain, 310 ; legislation against, in Britain, 194 ; in Canada, 34, 97 ; not occurring in Eritrea, 135 ; in France, 138, 291, 310, 311, 313, 422 ; in Germany, 74 ; in Italy, 288 ; in Liechtenstein, 288 ; in Spain, 148, 153 ; in Switzerland, 143, 146, 288, 289 ; in U.S.A., 118, 179, 229, 254, 405 ; on egg-plant, 288, 289, 405, 422 ; tomatoes and *Capsicum* little attacked by, 288 ; bionomics of, 139, 288, 289, 311, 422 ; measures and experiments against, 74, 97, 118, 120, 143, 152, 179, 229, 254, 288, 291, 311, 313, 405, 420, 424, 425 ; European bibliography of, 304.
- leptocoma*, *Brenthia*.
- Leptocryptus brevis*, hyperparasite of *Pieris brassicae* in Europe, 352.
- Leptoglossus australis*, on pumpkin in Fiji, 43.
- Leptoglossus bidentatus*, spray against, on cucurbits in Queensland, 275.
- Leptoglossus gonagra*, food-plants of, in Brazil, 106 ; *Lonchaea pendula* ovipositing in oranges damaged by, 106.
- Leptoglossus zonatus*, on *Citrus* and pomegranate in Arizona, 168 ; transmitting *Nematospora coryli*, 168.
- Leptohylemyia* (see *Hylemyia*).
- Leptomastix abnormis*, establishment of, against *Pseudococcus* in Chile, 8.
- Leptomastix dactylopii*, failure to establish, against *Pseudococcus* in Chile, 8.
- Leptoypha minor*, bionomics and control of, on *Fraxinus* spp. in U.S.A., 391.
- Lethalate, 87.

- Lethane Preparations, 199, 299, 254, 262, 364. (See Thiocyanates.)
- Lettuce, Aphids on, in Australia, 159, 162; Aphids on, in Brazil, 86; pests of, in greenhouses in Britain, 206, 325, 326, 327; *Mamestra brassicae* on, in Bulgaria, 385; *Limoniuss californicus* on, in California, 117; *Gryllulus domesticus* on, in greenhouses in U.S.S.R., 347; Aphids and virus diseases of, 86, 206; resistance of, to hydrocyanic acid gas, 326.
- leucophthalmus*, *Philaenus*.
- Leucopis obscura*, establishment of, against *Chermes piceae* in New Brunswick, 9.
- leucopterus*, *Blissus*.
- leucostigma*, *Hemerocampa*.
- leucotreia*, *Argyroplote*.
- Leurostethus raphiae*, bionomics of, in imported *Raphia* seeds in Morocco, 136.
- libyca*, *Empoasca* (see *E. lybica*).
- Liechtenstein, *Leptinotarsa decemlineata* in, 288.
- Light, effect of, on diapause in *Cydia molesta*, 54; reduction of, in rearing *Macrocentrus ancylicivorus*, 393; effect of, on DDT spray deposits, 177.
- Light-traps, for *Gnorimoschema operculella*, 136; not attracting *Platyedra gossypiella*, 226; ineffective against *Pseudholophylla furfuracea*, 29.
- Lignin, contributing to resistance of wood to *Kaloterms brevis*, 375.
- Lignin Pitch (see Sulphite Lye).
- ligustici*, *Otiorrhynchus*.
- Ligustrum* (see Privet).
- Ligyrrus burmeisteri*, on sunflower in Argentina, 66.
- Lima Beans, pests of, in Hawaii, 66, 67; pests of, in U.S.A., 117, 121, 171; effect of internal treatment of, with Dithane, 121.
- limacina*, *Caliroa*.
- limbatiiventris*, *Tibraca*.
- Lime (*Citrus*), *Aleurocanthus woglumi* on, in Mexico, 77.
- Lime (as an insecticide), dusting or spraying with, against pests, 48, 89, 103, 337, 393; treatments of stored cereals and pulses with, 16, 17, 35, 245, 395; addition of, to arsenical sprays, 257, 264, 372, 401; use of slurry containing, in sprays of DDT and oil, 319; as a carrier for dusts, 7, 34, 44, 48, 67, 122, 127, 242, 247, 274, 299; increasing effect of nicotine and anabasine sulphates, 242, 278; forms of, as carriers for calcium arsenate, 247, 248; and copper sulphate, 122, 247, 248; possibly reducing effectiveness of derris dust, 242; and sabadilla, 48, 266; and sulphur, 35, 368; and zinc sulphate, 372; causing injury to plants, 67, 142, 299; formulae containing, 35, 44, 48, 107, 122, 127, 197, 247, 257, 264, 274, 299, 368, 374, 401; use of, with calcium-cyanide solutions for tests of HCN, 403.
- Lime-sulphur, against *Aphrophora saratogensis*, 48; against Coccids, 140, 149, 201, 298; against *Hoplocampa testudinea*, 96; against mites, 103, 133, 145, 149, 274, 287, 368; insecticidal gases of, 58; formulae for, 95, 96, 133, 140, 149, 274, 298, 368; formulae containing, 95, 96, 140, 141, 298; and DDT, 27, 70; and lead arsenate, 95, 96, 145, 369; and nicotine, 95, 96, 201; and oil emulsions, 298; and sulphur, 141; types of tar distillates compatible with, 70; and zinc compounds, 140, 141; spreaders for, 95, 141; factors affecting injury to plants by mixed sprays containing, 95, 96, 140, 141.
- limitaria*, *Nyctobia*.
- Limoniuss agonus*, bionomics and control of, in Connecticut, 358.
- Limoniuss californicus*, crop relations and control of, in U.S.A., 116, 117.
- Limothrips denticornis*, on oats in Bohemia, 100.
- Linalool, unsatisfactory as timber preservative against termites, 375.
- lineatus*, *Agriotes*; *Sitona*.
- lineola*, *Adopaea*.
- lini*, *Thrips*.
- Linseed Oil, emulsions of, as adhesives for sprays, 107.
- Liothrips oleae*, 152.
- Liothrips urichi*, utilisation of, against *Clidemia hirta* in Fiji, 43.
- Liparis* (see *Lymantria*).
- Liposcelis divinatorius*, infesting DDT-treated rabbit skins in Hawaii, 266.
- Liriomyza (Agromyza) cicerina*, on *Cicer arietinum* in Spain and Ukraine, 148.
- Liriomyza (Agromyza) flaveola*, sprays against, on peas in California, 113; parasites of, on cereals in Italy, 378.
- Liriomyza solani*, on tomato in Britain, 327; other tomato leaf-miners recorded as, 327.
- Liriomyza strigata*, bionomics and control of, on tomato and lettuce in British Isles, 327, 328.
- Lissorhoptruss simplex*, toxicity to, of DDT in rice-field water in Arkansas, 173.
- Listroderes obliquus*, tests of DDT against, in California, 115; on tomato in Tasmania, 137.

- Litchee* (*Litchi chinensis*), *Dialeurodes elongata* on, in Bihar, 187; *Aonidiella orientalis* on, in China, 323.
- Lithuania, hyperparasites of *Pieris brassicae* in, 352.
- littoralis*, *Aphanus*.
- litura*, *Prodenia*.
- liturata*, *Tomaspis*.
- Lixus subtilis*, bionomics and control of, in Uzbekistan, 347.
- Lizards, destroying insects, 283, 400.
- Lochmaea capreae*, on *Salix viminalis* in Czechoslovakia, 102.
- Lochmaea suturalis*, on *Calluna vulgaris* in Scotland, 5.
- Locust, Australian Plague (see *Chortoicetes terminifera*).
- Locust, Desert (see *Schistocerca gregaria*).
- Locust, Yellow-winged (see *Gastrimargus musicus*).
- Locusta migratoria*, outbreak of, in France, 377, 423; factors influencing breeding grounds and outbreaks of, in U.S.S.R., 343, 344; parasite of, 423.
- Locusta migratoria migratoria* (in U.S.S.R.), bionomics and ecology of, 344; parasite of, 423.
- Locusts and Grasshoppers, in N. Africa, 36; in Argentina, 170; in Australia, 29, 133-135, 157, 216, 217, 222, 245, 367, 371, 416, 417; in Brazil, 170; in Canada, 34, 59, 60, 365; in Chile, 7, 19, 20, 354; in Eritrea, 307; in France, 377, 423; in Gold Coast, 90; in India, 198, 373; in Jugoslavia, 137; in Sierra Leone, 28; in Spain, 153; in Sudan, 340; in Tanganyika, 163, 306; in U.S.S.R., 343, 344, 423; in U.S.A., 363, 400; breeding centres and ecology of, 133-135, 343, 344; phases of, 153, 163, 198; climatic factors affecting, 133, 134, 135, 343, 344; migrations of, 36, 153, 170, 245, 344; abnormal oviposition by, 307; attempted utilisation of *Coccobacillus acridiorum* against, 51; insect enemies of, 7, 20, 29, 59, 60, 157, 245, 363, 423; mites on, 29; birds destroying, 20, 411; lizard destroying, 400; measures and experiments against (see also under Baits), 29, 162, 163, 164, 170, 217, 307, 367, 373, 374, 416, 417; uses of naphtha gasoline to kill collected, 60; bibliography of, 304.
- Lodgepole Pine (see *Pinus contorta*).
- Loganberry, *Phyllocoptes gracilis* on, in U.S.A., 130, 298.
- Lolium*, time of sowing of, in relation to *Heteronychus sanctae-helenae* in New South Wales, 190, 191.
- Lolium perenne*, *Oxycanus cervinatus* damaging, in New Zealand, 62.
- Lonchaea pendula*, bionomics and control of, in Brazil, 106.
- Lonchocarpus*, comparison of toxicity of *Derris* and, 428. (See Cubé.)
- longicornis*, *Diabrotica*; *Paratrechina* (*Prenolepis*).
- longipennis*, *Scirtothrips*.
- longipilosus*, *Haplonyx*.
- longispinus*, *Pseudococcus* (see *P. adonidum*).
- Loquat (see *Eriobotrya japonica*).
- lordi*, *Czenzspinskia*.
- loreyi*, *Cirphis*.
- loricatus*, *Eugaster*.
- Lorol, Sulphonated (see Sulphonated Lorols).
- lota*, *Agrochola* (*Orthosia*).
- Lotus scoparius*, *Asterolecanium arabidis* on, in California, 325.
- Louisiana, *Pulvinaria acericola* on persimmon in, 322.
- lounsburyi*, *Metaphycus*.
- Loxostege affinitalis*, measures against, on lucerne in Queensland, 272.
- Loxostege bifidalis*, on cotton in Argentina, 65.
- Loxostege commixtalis*, parasite of, in Colorado, 294.
- Loxostege frustralis*, introduction of *Cremnops vulgaris* into S. Africa against, 294.
- Loxostege similalis*, on lucerne in Kansas, 363.
- Loxostege sticticalis* (Beet Webworm), parasite of, in N. America, 294; on lucerne in Kansas, 363; migrations of, on cotton in Queensland, 42; effects of temperature on development of, 343.
- Loxotropa tritoma*, bionomics of, in Britain, 213, 214.
- lubiae*, *Erythroneura*.
- Lucerne, *Frankliniella paucispinosa* on, in Argentina, 65; pests of, in Australia, 42, 162, 271, 272, 316; Aphids on, in Bombay, 4; pests of, in Canada, 34, 185; *Dichroplus* on, in Chile, 19, 354; pests of, in Czechoslovakia, 100, 101; pests of, in Denmark, 348; *Otiorrhynchus ligustici* associated with, in France, 137; pests of, in U.S.A., 44, 84, 110, 111, 114, 121, 199, 254, 297, 363, 393, 396, 425; insects pollinating, in California, 174; vector of witches' broom virus of, 297; insects reducing seed production of, 110, 185, 271, 272; causes of temporary immunity of, from *Macrosiphum onobrychis*, 425, 426; not attacked by *Heteronychus sanctae-helenae*, 191; in crop rotations



- against wireworms, **116**; slightly injured by emulsion containing DDT, **159**.
- Lucilia sericata*, tests of gases from lime-sulphur on, **58**.
- Lucuma mammosa*, *Aleurocanthus woglumi* on, in Mexico, **77**.
- Lucuma obovata*, *Saissetia oleae* on, in Chile, **355**.
- Iudens*, *Anastrepha*.
- lugubrosa*, *Lambdina* (*Ellopia*) *fiscellaria*.
- luminosus*, *Pyrophorus*.
- Lupin, pests of, in Denmark, **348**.
- luridus*, *Troilus*.
- lutea*, *Cimbex*.
- luteola*, *Galerucella*.
- lutescens*, *Amblypelta*.
- lybica*, *Empoasca*.
- Lycium*, destruction of, against *Dacus ferrugineus tryoni* in S. Australia, **415**.
- lycopersicella*, *Keiferia*.
- lycopersici*, *Contarinia*; *Phyllocoptes*.
- Lyctus*, in bamboo culms in India, **91**; measures and experiments against, **91, 305**.
- Lyctus brunneus*, depletion of starch from trees to protect timber against, in Queensland, **247**.
- Lyda stellata* (see *Acantholyda pinivora*).
- Lydella nigripes* (see *Blondelia*).
- Lydella stabulans* var. *grisescens*, spread of, parasitising *Pyrausta nubilalis* in Ontario, **99**.
- Lygaeonematus abietum* (see *Pristiphora abietina*).
- Lygaeus hospes*, DDT toxic to, on tomato in Queensland, **243**.
- Lygus*, in Saskatchewan, **185**; in Tanganyika, **341**; in Uganda, **213**; in U.S.A., **46, 110, 180, 229**; on castor, **213**; on cotton, **46, 180, 341**; reducing seed production of lucerne, **110, 185**; on potato, **229**; tests of insecticides against, **46, 180, 229**; burning of lucerne fields against, **186**.
- Lygus elisus* (on lucerne), in Saskatchewan, **185**; dusts against, in U.S.A., **44, 110**; on *Chenopodium*, **185**.
- Lygus fraudulentus*, measures against, on artichoke in Chile, **355**.
- Lygus hesperus*, in Saskatchewan, **185**; insecticides against, in U.S.A., **44, 46, 110, 111, 114**; on *Chenopodium*, **185**; on cotton, **46, 111**; on lucerne, **44, 110, 111, 185**.
- Lygus oblineatus*, in Canada, **34, 98**; in U.S.A., **44, 83, 84, 176, 248**; on cotton, **176**; on lucerne, **44**; causing deformation of peach fruits, **34, 84, 176, 248**; on pear, **34**; insecticides against, **34, 44, 83, 98, 176**.
- Lygus schonlandi* (see *L. simonyi*).
- Lygus simonyi*, *L. vosseleri* confused with, in Uganda, **213**; synonymy of, **213**.
- Lygus vosseleri*, in Tanganyika, **213**; on cotton in Uganda, **213, 340**; on castor, **213**; relation of, to millets, **340**; confused with *L. simonyi*, **213**.
- Lymantria dispar*, in U.S.A., **121, 356**; disease of, **51**; effects of temperature on development of, **343**; DDT aerosol against, in forests, **121**.
- Lymantria monacha* (on conifers), in Czechoslovakia, **101**; outbreak of, in East Prussia, **233-241**; bionomics of, **233-236, 343**; disease and natural enemies of, **51, 233, 236, 237**; methods of forecasting outbreaks of, **238, 239**; measures against, **233, 239, 240, 241**.
- Lyonetia clerkella*, on cherry in Bohemia, **100**; sprays against, on apple in Switzerland, **145**.
- Lysol, uses of, against *Chermes cooleyi*, **309**.

## M.

- Macadamia ternifolia*, *Homoeosoma vagella* on, in Queensland, **246**.
- Mace Oil, **246**.
- Maclura pomifera*, resistance of wood of, to termites, **375**.
- Macroemphytus*, on *Cornus* in Massachusetts, **406**.
- Macroemphytus tarsatus*, burrowing in timber in Massachusetts, **406**.
- Macrocentrus ancylivorus* (in U.S.A.), value and utilisation of, against *Cydia molesta*, **258, 356**; liberation of, against *C. nigricana*, **297**; rearing of, on *Gnorimoschema operculella*, **129, 174, 356, 392, 409**; technique of handling, **174, 392, 409**; effect of insecticides on, **258**.
- Macrocentrus gifuensis*, utilisation of, against *Pyrausta nubilalis* in Canada, **99**.
- Macrocentrus homonae*, parasite of *Homona coffearia* in Ceylon, **2, 3**; effect of food on survival of, **2**; parasites of, **3**.
- Macroductylus subspinosus*, tests of insecticides against, in Canada, **98, 183**.
- Macrometopa*, parasite of *Popillia japonica* in Connecticut, **361**.
- Macromphalia*, *Podisus nigrolimbatus* predacious on, in Chile, **7**.
- Macromphalia dedecora*, on pine in Chile, **7**.

- Macrophoma dalmatica*, transmitted to olives by *Lasioptera berlesiana* in Italy, 286.
- Macropsis*, bionomics and distribution of species of, on *Prunus* in U.S.A., 402.
- Macropsis insignis*, 402.
- Macropsis quadrimaculata*, 402.
- Macropsis trimaculata*, 402; transmitting peach yellows virus, 401.
- Macropsis tristis*, 402.
- Macrosiphoniella* (see *Macrosiphum*).
- Macrosiphum dirhodum*, parasite of, on *Phleum pratense* in Scotland, 188.
- Macrosiphum gei*, auct. (see *M. solanifolii*).
- Macrosiphum koehleri* (see *M. solanifolii*).
- Macrosiphum onobrychis*, in Rumania, 286; in U.S.A., 113, 121, 181, 200, 254, 255, 258, 300, 301, 363, 425; on lucerne, 121, 254, 363; causes of temporary immunity of lucerne from, 425; on peas, 113, 181, 200, 255, 258, 286, 300, 301; relation of, to pea mosaic, 200, 300, 301; on vetch, 286; measures and experiments against, 113, 120, 121, 181, 200, 254, 255, 256, 258, 300, 392.
- Macrosiphum pelargonii*, on greenhouse cucumbers in Moravia, 101.
- Macrosiphum pisi* (see *M. onobrychis*).
- Macrosiphum sanborni*, fumigation against, on greenhouse chrysanthemum in Britain, 326; tests of insecticides on, 277; susceptibility of, to carbitol, 167.
- Macrosiphum solani*, on greenhouse lettuce in Britain, 325; studies of distribution and flight movements of, in Canada, 11, 12, 109; in U.S.A., 171, 230, 253, 254; on celery, 171; on potato, 11, 12, 230, 253, 254; overwintering on *Digitalis purpurea*, 230; transmitting virus diseases, 171, 230; measures against, 253, 254, 325.
- Macrosiphum solanifolii* (*koehleri*), in Australia, 156, 157, 159, 162; in Brazil, 86; in Britain, 325; in Canada, 11, 109; in Hawaii, 66; in New Zealand, 419; recorded as *M. koehleri* on *Cineraria* in Rumania, 286; in U.S.A., 171, 230, 253, 256, 257, 400; on beet, 419; on celery, 171; on lettuce, 86, 159, 162, 325; on potato, 11, 66, 156, 157, 162, 230, 253, 256, 257, 400; effect of condition of potato plants on, 157; overwintering on rose, 230; on tomato, 66; effects of populations of, on weight of tomato plants, 399; weed food-plants of, 230; in greenhouses, 286, 325; transmitting virus diseases, 86, 156, 157, 162, 171, 230, 419; traps for studying flight movements of, 109; measures and experiments against, 86, 159, 167, 230, 253, 256, 325; reproduction by, after treatment with DDT, 400.
- Macrosiphum sonchi*, and virus disease of lettuce in Brazil, 86; measures against, 86.
- Macrosteles divinus*, treatments against, on potato in N. Dakota, 229; experiments with virus disease of potato, etc., and, in New Brunswick, 97.
- macula-alba*, *Ceuthorrhynchus*.
- maculata*, *Empoasca*.
- maculatur*, *Itoplectis* (*Pimpla*).
- maculatus*, *Bruchus* (*Callosobruchus*); *Dermestes*.
- maculipennis*, *Anopheles*; *Dichroplus*; *Plutella*.
- Madagascar, *Conops unicolor* probably introduced into Mauritius from, 1.
- Madder Plant (see *Rubia*).
- magistretti*, *Spilochalcis*.
- Magnesite, against pests of stored products, 35, 36, 241, 245, 302.
- Magnesium Salts, treatment of waters containing, for preparation of oil emulsions, 246.
- magnicornis*, *Rhopaea*.
- Magnolia*, *Pseudococcus comstocki* on, in Ontario, 335.
- magnus*, *Tachypterellus quadrigibbus*.
- Mahogany, West Indian (see *Swietenia mahagoni*).
- maidis*, *Aphis*; *Peregrinus*.
- Maine, pests and diseases of potato in, 229, 230, 253, 254; miscellaneous pests in, 9, 23, 247.
- Maize, pests of, in Australia, 190, 218, 245, 316, 372; pests of, in Barbados, 22; pests of, in Brazil, 107, 108; *Pyrausta nubilalis* on, in Canada, 9, 97, 139; *Dichroplus* on, in Chile, 19; *P. nubilalis* on, in Czechoslovakia, 101, 103; locusts destroying, in France, 377; pests of, in Hawaii, 66; *P. nubilalis* on, in Jugoslavia, 386; pests of, in Mauritius, 1; *Lachnosterna* on, in Mexico, 334; pests of, in Peru, 76; *Heliothis armigera* on, in S. Rhodesia, 339; *Aphis maidis* and virus disease of, in Rumania, 148; *H. armigera* on, in Tanganyika, 341; pests of, in U.S.A., 53, 94, 116, 180, 231, 250, 337, 338, 358, 359, 362, 403, 408; nitrogen deficiency favouring *Blissus leucopterus* on, 173; effect of feeding by *Popillia japonica* on pollination of, 53, 337; treatment of ears of, against pests, 337, 408; hybrids and time of sowing of, in relation to pests, 94, 231, 341, 362; interplanting of cotton with, in Nigeria and Nyasaland, 342.

- Maize (Stored), pests in, and their control, **1, 23, 69, 168, 245, 386, 387, 395**; modification of regulations on importation of, into U.S.A. from Canada, **364**; (meal); in baits for locusts, **164**; *Tribolium* in soap powder containing, **410**.
- majalis*, *Amphimallon*.
- major*, *Penthaleus*.
- malacellus*, *Crambus*.
- Malacosoma americana*, measures and experiments against, in U.S.A., **56, 180, 228, 269**; on apple, **228**.
- Malacosoma disstria*, outbreak of, on aspen, etc., in Canada, **9**; in U.S.A., **9, 269**.
- Malacosoma neustria*, on apple in Moravia, **101**; effects of temperature on development of, **343**.
- mali*, *Aphelinus*; *Psylla*.
- malifoliae*, auct., *Yezabura* (see *Anuraphis roseus*).
- malinellus*, *Hyponomeuta padellus*.
- Mallodon downesi*, bionomics of, in Spanish W. Africa, **36, 37**.
- Malt Extract, in bait for *Polia oleracea*, **328**.
- Malva viscus* spp., *Platyedra gossypiella* on, in Rio Grand Valley, **50**.
- Malvina punctata*, parasite of *Hexamera alcis* in New Zealand, **63**.
- Mamestra brassicae*, in Britain, **309, 310**; bionomics of, in Bulgaria, **385**; measures against, on crucifers, **309, 310, 385**; on other plants, **385**.
- Mamestra trifolii* (see *Hadena*).
- Mammea americana* (Mamey), *Lonchaea pendula* on, in Brazil, **106**.
- Mancipium brassicae* (see *Pieris*).
- Mandarin Orange (see Orange, Mandarin).
- Mangel, *Pegomyia* on, in Scotland, **188**; Aphids and virus diseases of, in Scotland and New Zealand, **4, 419**; as bait for *Aphodius*, **328**.
- mangiferae*, *Cryptorrhynchus*.
- Mango, pests of, in W. Africa, **28, 36**; Coccids on, in Argentina, **66**; *Lonchaea pendula* on, in Brazil, **106**; *Pulvinaria psidii* on, in Florida, **322**; *Indarbela quadrinotata* on, in India, **373**; pests of, in Mexico, **77, 117**; *Aonidiella* spp. on, in Philippines and Porto Rico, **323**; pests of, in Queensland, **221, 222, 276**; sterilisation of fruit of, against *Anastrepha ludens*, **117**.
- Manihot utilisissima* (see Cassava).
- manihoti*, *Anastrepha*.
- Manitoba, *Cephus cinctus* in, **338**; *Harmoloba fumiferana* in, **99**; *Melanoplus* of, **304**.
- Mannitai Monolaurate, in spray against *Psylla buxi*, **263**.
- Mantis religiosa*, releases of, against forest pests in Canada, **9, 302**.
- Maple, *Tortrix viridana* on, in Austria and Czechoslovakia, **331**; *Pulvinaria* spp. on, in U.S.A., **322**.
- Marasmia veniliatis*, on rice in Fiji, **43**.
- Marasmius perniciosus*, on cacao in Trinidad, **88**.
- marci*, *Bibio*.
- Margarodes aureliana*, sp. n., damaging lawns in Sudan, **68**.
- Margaronia indica* (on cucurbits), in Fiji, **43**; bionomics and control of, in Queensland, **274**.
- Margaronia tolimnalis*, on fig in Queensland, **246**.
- marginata*, *Pennisetia* (*Bembecia*).
- marginellus*, *Collops*.
- marginipora*, *Aonidiella*.
- Marigold, *Heteronychus sanctae-helenae* on, in New South Wales, **35**.
- marlatti*, *Aleurolobus*.
- maroccanus*, *Doclostaurus*.
- Maruca testulalis*, dust against, on lima beans in Hawaii, **67**.
- Maryland, pests of leguminous crops in, **122, 255, 258**; miscellaneous pests in, **122, 322, 334, 405**; *Popillia japonica* in, **119, 260**; Mirid on *Yucca filamentosa* in, **32**.
- Massachusetts, pests of small fruits in, **181, 410**; Coccid on orchid in, **322**; pests of forest and ornamental trees in, **121, 269, 406**; *Macremphytus* burrowing in timber in, **406**.
- materna*, *Othreis* (*Ophideres*).
- mauritanicus*, *Tenebroides*.
- mauritii*, *Spodoptera*.
- Mauritius, miscellaneous pests in, **1, 2**; parasites and biological control of sugar-cane pests in, **1**; insects on noxious plants in, **2**.
- Mayetiola destructor*, on wheat in U.S.A., **23, 84, 127, 232, 338**; bionomics of, **127**; varieties of wheat in relation to, **23, 232**; on barley, **127**.
- Mealy Plum Aphis (see *Hyalopterus arundinis*).
- Meat Ant (see *Iridomyrmex detectus*).
- Meat, Dried, *Dermestes peruvianus* infesting, in Chile, **354**.
- medicaginis*, *Contarinia*.
- Medicago*, *Frankliniella paucispinosa* on, in Argentina, **65**.
- Medicago hispida*, *Heliothis armigera* migrating to peach from, in New South Wales, **371**.
- Medicago sativa* (see Lucerne).
- Mediolata novae-scotiae*, sp. n., bionomics of, predacious on other mites in Nova Scotia, **411**.



- Medlar, *Rhopalosiphum crataegellum* on, 295.  
*megacephala*, *Pheidole*.  
*Megachile*, pollination of lucerne by, in U.S.A., 174, 363.  
*Megacyllene*, correct name for *Cyllene*, Newm., 232.  
*Megaselia*, predacious on *Diatraea saccharalis* in Brazil, 169.  
*megaspila*, *Brachymeria*.  
*Megymenum insulare*, spray against, on cucurbits in Queensland, 275.  
*Melampsalta*, *Eucalyptus* killed by, in Queensland, 247.  
*Melanagromyza* (see *Agromyza*).  
*melanocephala*, *Diabrotica*.  
*melanocephalus*, *Phylus*.  
*melanogaster*, *Hemiteles*.  
*Melanoplus*, identification of nymphs of, of Manitoba, 304.  
*Melanoplus differentialis*, on lucerne in California, 110, 111; tests of insecticides against, 110, 111, 120; toxicity of HCN to eggs of, 403.  
*Melanoplus mexicanus*, outbreak and parasites of, in Br. Columbia, 34, 60.  
*Melanoplus mexicanus mexicanus*, 60.  
*melanothorax*, *Mesochorus*.  
*Melanotrichus* (see *Orthotylus*).  
*Melia azadirachta*, uses of leaves of, against pests of stored products, 16, 17.  
*Melia dubia*, *Amblypelta lutescens* on, in Queensland, 276.  
*Meligethes aeneus* (on crucifers), in Britain, 310; in Moravia, 101; DDT against, 211, 310, 381.  
*Melilotus*, Phymatid attacking bees visiting, in W. Virginia, 392; in crop rotations against wireworms, 116.  
*Melilotus alba*, *Frankliniella paucispinosa* on, in Argentina, 65.  
*melinus*, *Strymon*.  
*Melissodes*, pollination of lucerne by, in California, 174.  
*Melittia satyriniformis*, on squash in Arizona, 167.  
*Melittobia*, parasite of Tachinids in Brazil, 169.  
*Melittobia indica* (see *Syntomosphyrum*).  
*melliferum*, *Rhopalosiphum*. (see *Hyadaphis sii*).  
*mellitor*, *Bracon* (*Microbracon*).  
*Melolontha melolontha*, bionomics and control of, in forest nurseries in Britain, 309.  
*Melon*, *Aphis gossypii* on, in Argentina, 19; *Aulacophora foveicollis* on, in Italy, 285; pests of, in Queensland, 243, 274, 275.  
*Mentha spicata*, *Plusia egena* on, in Argentina, 66.  
*mercuri*, *Signiphora*.  
 Mercurous Chloride (Calomel); uses of, against *Hylemyia* spp., 34, 97, 298, 299; dusting with, against *Psila rosae*, 366.  
 Mercury, use of, against stored-product pests, 16, 17.  
*meridionalis*, *Ocnogyna baetica*.  
*Mermis*, infesting *Operophtera brumata* in Italy, 283.  
*Mescinia peruella*, on cotton in Peru, 76.  
*mesillae*, *Telenomus*.  
 Mesityl Oxide, as solvent for DDT, 85.  
*Mesochorus melanothorax*, parasite of *Euphorus sahlbergellae* in Gold Coast, 87.  
*Mesochorus pectoralis*, biology and importance of, in Germany, etc., 351-353; synonymy of, 351.  
*Mesochorus perniciosus*, parasite of *Cremnops vulgaris* in N. America, 295.  
*Mesochorus stigmaticus* (see *M. pectoralis*).  
*Mesographa forficatis*, dust against, on kale in Britain, 309.  
*Mesoleius*, parasite of *Pristiphora abietina* in Germany, 331.  
*Mesoleius dubius*, 331.  
*Metagonistylum minense*, parasite of *Diatraea saccharalis* in Brazil, 169; parasites of, 169.  
 Metal Barriers, against termites, 314.  
*Metamasius sericeus*, on sugar-cane in Barbados, 22.  
 1 - (Metanitrobenzoyl) - 2 - phenylhydrazine, toxicity of, to *Cydia pomonella*, 409.  
*Metaphycus flavus*, parasite of *Saissetia oleae* in Chile, 354.  
*Metaphycus helvolus* (parasite of *Saissetia oleae*), introduction and spread of, in S. America, 21; in California, 21, 323; in New South Wales, 162; value and utilisation of, 21, 162, 323, 324.  
*Metaphycus lounsburyi*, introduction, spread and value of, against *Saissetia oleae* in S. America, 21.  
*Metaphycus stanleyi*, parasite of *Coccus hesperidum* in California, 127.  
*Metarrhizium anisopliae*, in Argentina, 18; in Brazil, 86; in Br. Guiana, 427; in New Zealand, 63; in Trinidad, 427; in Virginia, 405; possible forms and utilisation of, infesting *Tomaspis* spp., 86, 427; infesting other insects, 18, 63, 405.  
*Meteorus versicolor*, parasite of *Lasiocampa quercus* in France, 422.  
 Methallyl Chloride, soil fumigation with, against *Dermolepida albohirtum*, 28.  
 Methyl Bromide, fumigation of plants and planting material with, 55, 56, 268, 323; against pests in fruit and

- fruit boxes, **33, 201, 323**; against pests in other stored products, **30, 268, 324**; low temperature fumigation with, **268**; survey of uses of, **323**; risk of poisoning by, **324**; and carbon dioxide, **30**.
- Methyl Chloride, for producing aerosols, **253, 255, 405, 413**; lack of stability of DDT with, **413**.
- Methyl Isobutyl Ketone, as solvent for DDT, **85**.
- Methylated Naphthalenes, as solvents for 1068, **119**; as solvents for DDT, **112, 253**. (See Velsicol AR-60.)
- 4-Methylcyclohexanone Semicarbazone, not a synergist for pyrethrum marc, **123**.
- Methylene Chloride, as solvent for DDT, **85**.
- 3,4 - Methylenedioxybenzyl - n - propyl Ether, as a synergist for pyrethrum marc, **123**; injuring plants, **123**.
- meticulosa*, *Phlogophora*.
- Mexican Bean Beetle (see *Epilachna varivestis*).
- mexicanus*, *Belonuchus*; *Melanoplus*.
- Mexico, *Platyedra gossypiella* on cotton in, **50, 182, 387**; forest pests in, **334**; fruit pests in, **77, 117, 144, 321, 322, 334, 387**; *Diatraea saccharalis* on sugar-cane in, **387, 388**; *Lachnosterna* in, **334**; beneficial insects and biological control in, **77, 78, 387, 388**; Bruchid in chick peas exported from, **30**.
- Micania scandens*, parasites preventing control of, by *Psara bipunctalis* in Mauritius, **2**.
- Micrapate scabrata*, in avocado and vine in Chile, **354**.
- Microbracon* (see *Bracon*).
- Microcryptus* (see *Aptesis*).
- Microdus* (see *Agathis*).
- Microphanurus basalis* (parasite of *Nezara viridula*), in Fiji, **43**; in Queensland, **243, 316**.
- Microplectron* (see *Dahlbominus*).
- Microplitis ayerzai*, parasite of *Protoparce* in Argentina, **66**.
- Microterys aeruginosus* (see *Syrphophagus*).
- Microweisla misella* (see *Pentilia*).
- middletoni*, *Aphis*.
- migratoria*, *Locusta*.
- Milk, uses of, in sprays, **107, 140, 252**.
- Milky Disease, experiment with, against *Amphimallon majalis* in New York, **200**. (See *Bacillus lentimorbus* and *B. popilliae*).
- milleri*, *Recurvaria*.
- Millet (see *Echinochloa*, *Eleusine*, *Panicum* and *Sorghum*).
- Mindarus abietinus*, on *Abies alba* in Switzerland, **202**.
- minense*, *Metagonistylum*.
- Mineola vaccinii* (Cranberry Fruit-worm), in Canada, **98**; in U.S.A., **298, 393, 394**; bionomics of, on blueberry, **393, 394**; insecticides against, **98, 298, 394**.
- Minnesota, *Harmologa fumiferana* on pine in, **79**.
- minor*, *Empoasca*; *Leptopypha*; *Pinnaspis* (*Hemichionaspis*).
- Minthea rugicollis*, measures against, introduced into Chile in tea chests from Ceylon, **355**.
- minuta*, *Hoplocampa*.
- minutum*, *Trichogramma*.
- minutus*, *Dinoderus*; *Tetrastichus*.
- mirabilis*, *Homalotylus* (see *H. flaminus*).
- Miscogaster*, parasite of *Liriomyza flaveola* in Italy, **378**.
- misella*, *Pentilia* (*Microweisla*).
- Mississippi, *Macropsis* spp. on *Prunus* in, **402**.
- Missouri, *Heliothrips haemorrhoidalis* on New Zealand spinach in, **56**; *Macropsis* spp. on *Prunus* in, **402**.
- Mites, attacking insects, **29, 226, 411**; attacking other mites, **132, 209, 411**; natural enemies of, **83, 132, 148, 209, 287, 320, 411**; classification and new species of, **168, 325, 411**; book on injurious, **42**.
- Mocis frugalis*, bait for, on lucerne in Queensland, **271**.
- Mocis repanda*, on sugar-cane in Argentina, **65**; on maize and grasses in Brazil, **108**; DDT against, **108**.
- Mocis trifasciata*, outbreak of, on sugar-cane in Queensland, **368**.
- modesta*, *Sciara*.
- Molasses, in baits, **42, 97, 137, 195, 217, 271, 306**; in bait-spray for *Psila rosae*, **25, 26**; in sprays against other insects, **43, 107, 170, 244, 339**.
- molesta*, *Cydia* (*Grapholitha*).
- molitor*, *Tenebrio*.
- mollis*, *Ernobius*.
- Mometa zemiodes*, infesting field and stored cotton seeds in Somalia, **226**.
- monacha*, *Lymantria* (*Liparis*, *Ocneria*).
- Monarthropalpus buxi*, sprays against, on *Buxus* in New York, **263**.
- Monilia cinerea*, *Rhynchites bacchus* overwintering in apples attacked by, in France, **138**.
- Monima stabilis* (see *Orthosia*).
- Monocesta coryli*, bionomics of, on elm in Florida, **79**.
- Monodontomerus aereus*, parasite of *Tortrix murinana* in Germany, **72, 73**.

- Monoethanolamine, soaps prepared with, as an emulsifier, **98**.
- Monolepta australis* (rosea), swarming habit of, on ground-nuts in Queensland, **316**.
- Monomorium pharaonis*, bait for, in dwellings in New South Wales, **371**.
- Montandoniella moraguesi*, predacious on *Gynaikothrips ficorum* in Spain, **152**.
- montrouzieri*, *Cryptolaemus*.
- Montserrat, *Aphis gossypii* on cotton in, **342**.
- monuste, *Ascia*.
- moraguesi*, *Montandoniella*.
- mordwilkwii*, *Aphis*.
- moreletii*, *Scymnus*.
- mori*, *Bombyx*.
- Morin, little repellent to termites, **375**.
- Mormon Cricket (see *Anabrus simplex*).
- Morocco, Aleurodids in, **427**; *Leurostethus raphiae* imported into, in *Raphia* seeds, **136**; *Schistocerca gregaria* in, **36**; migration of *S. gregaria* to Spain from, **153**; beneficial insects in, **155, 427**.
- Morrisonia confusa*, on apple and willow in U.S.A., **409**.
- Morrisoniella*, gen. n., **376**.
- Morrisoniella americana*, sp. n., on coffee in Ecuador, **376**.
- Morrisoniella cynodontis*, systematic position of, **376**.
- Morrisoniella dianthi*, systematic position of, **376**.
- Morrisoniella elongata*, systematic position of, **376**.
- Morrisoniella globocula*, sp. n., on coffee and cacao in Trinidad, **376**.
- Morrisoniella theobromae*, sp. n., on cacao in Ecuador, **376**.
- mosellana*, *Sitodiplosis*.
- Mosquitos, measures against, in rice-fields, **173, 353**.
- motti*, *Empoasca herri*.
- moubata*, *Ornithodoros*.
- Mound Ant (see *Iridomyrmex detectus*).
- Mountain Bluebird (see *Sialia currucoides*).
- Mulberry, Coccids on, in Argentina, **65**; *Indarbela quadrinotata* on, in India, **373**.
- Mullein (see *Verbascum thapsus*).
- multistriatus*, *Scolytus*.
- Mundulea*, treatment of grain with, against Coleoptera, **17**.
- mundulus*, *Cyrtorhinus*.
- muriceus*, *Phyrdenus*.
- murinana*, *Tortrix* (*Cacoecia*).
- murinanae*, *Glypta*.
- Muraya exotica*, *Aleurolobus* spp. on, in Punjab, **187**; suggested use of, against *Aleurocanthus woglumi*, **77**.
- murrayae*, *Aleurotuberculatus*.
- Musca domestica*, effect of temperature on pupal development of, **277**; use of, in insecticide tests, **57, 96, 177**.
- Musca domestica vicina*, parasite of, in Fiji, **43**.
- Mushrooms, *Aphodius* spp. on, in Britain, **328**; *Sciara* spp. on, in Moravia, **103**.
- musicus*, *Gastrimargus*.
- Mustard, Aphid on, in U.S.A., **182**.
- mutabilis*, *Crambus*.
- mutualis*, *Psara* (see *P. bipunctalis*).
- Myelois*, in cottonseed in Argentina, **66**.
- Myelois ceratoniae*, **66**.
- Myiapis angellozi*, parasite of honey bees in France, **420**.
- Myiophasia globosa*, parasite of *Chalco-dermus aeneus* in Virginia, **405**.
- Myrciaria cauliflora*, *Aonidiella eugeniae* on, in Brazil, **323**.
- Myrmecia gulosa*, fumigation of nests of, in New South Wales, **371**.
- Myrtle (*Myrtus communis*), *Diaspidiotus wuae* on, in Spain, **149**.
- Mysore, *Colemania sphenarioides* in, **15**; pests of stored grain and pulses in, **15, 16, 17**; *Proceras* spp. and their biological control on sugar-cane in, **3, 96**.
- mystax*, *Neoterius*.
- Mytilococcus* (see *Lepidosaphes*).
- Mytilococcus conchiformis*, auct. (see *Lepidosaphes ficus*).
- Myzodes* (see *Myzus*).
- Myzus ascalonicus*, sp. n., bionomics of, in Britain, **205, 206**; virus diseases transmitted by, **206**.
- Myzus cerasi*, tests of insecticides on, **166**.
- Myzus circumflexus*, in California, **171**; in Switzerland, **381**; transmitting virus diseases of celery and potato, **171, 381**; susceptibility of, to insecticide test medium, **167**.
- Myzus convolvuli* (see *Macrosiphum solani*).
- Myzus ornatus* (on greenhouse plants), fumigation against, in Britain, **325**; in Rumania, **286**.
- Myzus persicae*, **273**; in Argentina, **426**; in Australia, **156, 157, 159, 162**; in Brazil, **86**; in Britain, **4, 188, 206**; in Canada, **11, 109**; in Latvia, **350**; in New Zealand, **419**; in Rumania, **286**; in Switzerland, **381, 382**; in U.S.A., **171, 229, 252, 253, 256, 257, 400**; relation of, to virus diseases of beet and mangel, **4, 204, 205, 206, 419, 426**; on crucifers, **4, 159, 230, 252**; on lettuce, **86, 159, 162**; relation of, to virus diseases of lettuce, **86, 206**; on potato, **4, 11, 156, 157, 159, 253, 256, 257, 400**;



transmitting virus diseases of potato, 156, 157, 162, 206, 229, 350, 381, 382 ; on *Prunus* spp., 230, 381 ; on other plants, 188, 230, 286 ; transmitting virus diseases of other plants, 171, 206 ; bionomics of, 5, 11, 109, 157, 381 ; traps for studying flight movements of, 109 ; insecticides against, 86, 159, 188, 252, 253, 256, 257, 382, 383, 400 ; reproduction by, after treatment with DDT, 400 ; other measures against, 5, 230.

*Myzus pseudosolani* (see *Macrosiphum solani*).

*Myzus solani* (see *Macrosiphum*).

## N.

*Nabis ferus*, predacious on cotton insects in U.S.A., 111, 396 ; effect of DDT dust on, 111.

*Nabis punctipennis*, habits of, in Chile, 354.

Nacconol NR, 180.

*naevana*, *Rhopobota* (*Acroclita*).

*nanus*, *Hemiteles*.

Naphtha, as a solvent for DDT, 35, 158, 159, 162, 219, 223, 317, 369, 370, 372 ; causing spotting of apples, 369.

Naphtha Gasoline, for killing collected insects, 60.

Naphthalene, soil treatment with, against *Anomala horticola*, 166 ; as repellent against *Psila rosae* and *Tettigella viridis*, 25, 225, 366 ; in mixture against Diptera in rice seed-beds, 353 ; tests of, against pests of stored products, 16, 35, 68 ; uses of, against borers in bamboo culms, 92 ; methods of vaporising, against pests, 387, 389.

$\alpha$ -Naphthol, action of, in cockroaches, 58.

$\beta$ -Naphthol, ineffective against *Tettigella viridis*, 225.

*nararia*, *Natada*.

*Narosa conspersa*, parasites of, on tea in Ceylon, 3.

*Nasutitermes* (see *Eutermes*).

*nasturtii*, *Contarinia*.

*nasuta*, *Protop.*

*Natada nararia*, parasites of, on tea in Ceylon, 3.

*natadae*, *Platyplectrus*.

Nebraska, maize pests in, 362, 408 ; *Epitrix tuberis* on potato in, 335.

*nebris*, *Papaipema*.

*nebulosa*, *Cassida*.

*Necrobia rufipes*, fumigation of imported ground-nuts against, in Canada, 30.

Nectarine, pests of, in Australia, 219, 372, 415 ; *Myzus persicae* on, in Switzerland, 381.

*Nectria coccinea*, Coccid associated with, on beech in Nova Scotia, 302.

Neem (see *Melia azadirachta*).

*nelliella*, *Euzophera*.

Nematodes, infesting *Operophtera brumata*, 283.

*Nematospora coryli*, *Leptoglossus zonatus* transmitting, in pomegranate in Arizona, 168.

*Nematus ribesii*, on currants in Rumania, 286 ; tests of insecticides on, 166.

*memoralis*, *Acantholyda* (see *A. pinivora*).

*memorata*, *Phyllotoma*.

*Nemorilla floralis*, bionomics of, parasitising *Rhopobota naevana* in Italy, 282.

*nemorivagus*, *Nysius*.

*nenuphar*, *Conotrachelus*.

*Neoborus* spp., bionomics and control of, on *Fraxinus* spp. in California, 50.

*Neobrachymeria* (see *Brachymeria*).

*Neodiprion abietis*, on *Abies* and spruce in New Brunswick, 9.

*Neomaskellia bergii*, on sorghum in Fr. W. Africa, 427.

*neoniger*, *Lasius niger*.

*Neopales pavidus*, parasite of *Operophtera brumata* in Italy, 283.

Neoquassin, 103.

*Neorhizococcus*, gen. n., 376.

*Neorhizococcus andensis*, sp. n., on coffee in Colombia, 376.

*Neorhizococcus coffeae*, type of genus, 376.

*Neosciara* (see *Sciara*).

*Neospades chrysopygia* (see *Cisseis*).

*Neotachina laticornis*, parasite of *Odontria* in New Zealand, 68.

*Neoterius mystax*, in building timber in Chile, 354.

*nervosa*, *Sciara*.

*neustria*, *Malacosoma*.

New Brunswick, Aphids in, 11, 97, 109, 268 ; mealybug on apple in, 13 ; forest pests and their biological control in, 8, 9 ; *Macrosteles divisus* not transmitting potato purple top virus in, 97.

New Hebrides, Coccid on coconut in, 323.

New Jersey, *Epilachna varivestis* on beans in, 13 ; pests of peach in, 251, 252, 403 ; pests of turf in, 363, 394 ; *Arilus cristatus* predacious on *Popillia japonica* in, 230.

New Mexico, new Tineid on egg-plant in, 300 ; Coccid on peach in, 321.

New South Wales, pests of *Citrus* in, 6, 162, 372 ; insects on *Eucalyptus* and *Tristania* in, 6, 218, 316 ; orchard pests in, 6, 219, 317, 369, 371, 372 ; pests of vegetables in, 35, 160, 162, 191, 217, 218, 276, 315, 370 ; *Tenuipalpus californicus* on vines in, 132 ;

- pests of stored products in, 35, 168, 276, 303 ; ants in, 371 ; grasshoppers in, 133, 135, 216, 217, 371, 417 ; *Gryllotalpa* spp. in, 191 ; *Heteronychus sanctae-helenae* in, 35, 190, 191, 218, 372 ; natural enemies and biological control of insects in, 6, 162, 219, 317 ; biological control of noxious plants in, 161, 220 ; *Aonidiella aurantii* intercepted in Fiji from, 43.
- New York, pests of *Buxus* in, 263 ; pests of cruciferous crops in, 199, 252, 263 ; pests of cucurbits in, 262, 404 ; *Hydroecia immanis* on hop in, 200 ; pests of leguminous crops in, 199, 200, 254, 255, 300, 301, 393 ; mosaic disease of peas in, 200 ; orchard pests in, 131, 132, 198, 199, 228, 257, 258, 322 ; pests of small fruits in, 140, 199, 393 ; Coccid on orchards in, 322 ; potato pests in, 118, 256, 262 ; insects damaging nylon and wool in, 45, 260 ; injurious Lamellicorns in, 200, 250, 261, 337 ; beneficial insects in, 132, 199, 258, 337 ; utilisation of *Bacillus popilliae* against *Popillia japonica* in, 261, 337.
- New Zealand, orchard pests in, 64 ; pests of raspberry in, 61 ; Tineid in pine cones in, 418 ; pests of vegetables in, 14, 63, 64, 419 ; mosaic diseases of beet and beans in, 419 ; *Odontria zealandica* in, 13, 64, 68 ; *Oxycanus* spp. in, 62, 63 ; natural enemies and diseases of insects in, 62, 63, 68, 418 ; establishment of *Chrysomela hyperici* against *Hypericum perforatum* in, 161.
- New Zealand Spinach (see *Tetragonia expansa*).
- Newfoundland, Aphids on potato in, 11, 109.
- Nezara viridula*, in Australia, 159, 243, 275, 316 ; in Fiji, 43 ; in Italy, 420 ; in St. Lucia, 93 ; in Texas, 176 ; on cotton, 176, 420 ; on ground-nuts, 316 ; on vegetables, 159, 243, 275 ; parasites and biological control of, 43, 243, 316 ; insecticides against, 93, 159, 176, 243, 275, 316.
- Nicotine, against Aphids, 34, 47, 67, 86, 95, 166, 176, 188, 217, 254, 256, 274, 299, 309, 326, 382, 383, 398, 421 ; against Mirids, 51, 67, 84, 98 ; against other Hemiptera, 80, 84, 199, 276, 364 ; against Coleoptera, 84, 122, 138, 166, 176, 328 ; against Diptera, 25, 94, 328 ; against *Cydia pomonella*, 80, 81, 82, 83, 98, 142, 143, 145, 257, 318, 319 ; against other Lepidoptera, 7, 12, 38, 67, 95, 162, 166, 279, 358, 359, 380 ; against mites, 287, 315, 320 ; against sawflies, 95, 166 ; against thrips, 114, 274 ; factors affecting absorption of, by *Periplaneta americana*, 126 ; ineffective as bee repellent in dusts, 297 ; dusting with, 7, 34, 47, 67, 84, 86, 122, 162, 176, 188, 199, 217, 254, 274, 276, 299, 315, 318, 328, 358, 359, 364, 382, 398 ; activators for, in dusts, 299 ; carriers for, 7, 67, 217, 299, 318, 398 ; fumigation with, 114, 256, 326 ; fixed compounds of, 80, 81, 82, 83, 97, 98, 122, 142, 143, 279, 319, 320, 358, 359 ; formulae containing, 7, 34, 67, 80, 81, 82, 84, 86, 95, 96, 142, 176, 217, 254, 257, 274, 276, 299, 309, 315, 318, 358, 359, 398, 421 ; and arsenicals, 67, 81, 162, 176, 257, 398 ; and Bordeaux mixture, 96 ; and cryolite, 67 ; and DDT, 82, 254, 257, 318, 319, 398 ; and lime-sulphur, 95, 96 ; and oil emulsions, 12, 51, 67, 81, 82, 83, 98, 257, 319, 320 ; and rotenone, 254, 299, 318 ; and soap, 98, 287, 309 ; and sulphur, 84, 95, 96 ; other agents in sprays containing, 51, 81, 82, 96, 319.
- Nicotine Sulphate, against Aphids, 64, 86, 219, 242, 273, 274 ; against Coccids, 201, 411 ; against Mirids, 51, 67, 87, 355 ; against other Hemiptera, 263, 391 ; against Coleoptera, 121, 122 ; against *Cydia pomonella*, 33, 93, 196, 318, 319, 369 ; against other Lepidoptera, 7, 12, 64, 97, 107, 160, 198, 266, 281, 373 ; against Diptera, 67, 242 ; against *Gryllotalpa* spp., 191 ; against *Phylacteophaga eucalypti*, 218 ; against thrips, 112, 231, 274, 364 ; treatment of crocus corms with, against *Rhizoglyphus*, 414 ; dusting with, 7, 67, 122, 160, 242 ; carriers for, 7, 67, 122, 242 ; formulae containing, 12, 33, 64, 81, 82, 86, 87, 112, 121, 122, 160, 198, 218, 219, 231, 263, 266, 274, 318, 369, 373, 391, 411, 414 ; and basic copper arsenate, 67, 121 ; and bentonite, 33, 81, 82, 97, 98, 318, 319 ; and Bordeaux mixture, 196 ; and DDT, 266, 318, 319, 320, 411 ; and derris, 12, 242 ; and lead arsenate, 12, 64, 160, 196, 266, 273, 281, 369 ; and lime-sulphur, 201 ; and maize syrup, 231 ; and oil emulsions, 12, 33, 51, 98, 196, 218, 219, 242, 266, 319, 320, 391 ; and soap, 64, 112, 191, 219, 263, 274, 281, 355, 373, 411 ; other agents in sprays containing, 87, 263, 266, 319.
- niger*, *Lasius*.
- Nigeria, pests and disease of cacao in, 87, 88, 90 ; cotton pests in, 342 ; Bruchid on *Elaeis guineensis* in, 305 ;

- records of food-plants of insects in, **304**; pests of stored cacao and ground-nuts in, **88, 216**; pests imported into Canada in ground-nuts from, **30**.
- nigra*, *Saissetia*; *Salpingogaster*.  
*nigricana*, *Cydia* (*Laspeyresia*).  
*nigriceps*, *Camponotus*.  
*nigripalpis*, *Exorista* (see *Zenillia caesar* and *Z. confusionis*).  
*nigripes*, *Blondelia* (*Lydella*); *Prosenia*.  
*nigriscutellatus*, *Nysius*.  
*nigritarius*, *Ichneumon*.  
*nigrofasciatus*, *Dysdercus*.  
*nigrolimbatus*, *Podisus* (*Apateticus*).  
*nigropilosus*, *Thrips*.  
*Nirosan*, **145, 198**.  
*nitidalis*, *Diaphania*.  
*Nitriles*, **424, 425**.  
Nitrogen (in soil), effects of, on infestation of plants by insects, **56, 293**.  
*niveipennis*, *Agromyza*.  
*njalensis*, *Pseudococcus*.  
*NNO*, **263**.  
*noacki*, *Cales*.  
*nobilis*, *Cassida*.  
*Nomadacris septemfasciata*, habits and control of, in Tanganyika, **163**; effects of temperature on, **343**.  
*Nomia*, pollination of lucerne by, in U.S.A., **174, 363**.  
 $\alpha, \alpha', \alpha''$ -Nonachlormesitylene, toxicity of, to *Cydia pomonella*, **126**.  
*nordmannianae*, *Chermes*.  
Norfolk Island, failure to establish *Teleonemia* against *Lantana* in, **220**.  
*norvegicus*, *Calocoris*.  
Norway Spruce (see *Picea abies*).  
*notataria*, *Eufidonia*.  
*Notothophus* (see *Orgyia*).  
Nova Scotia, pests of apple in, **301, 411**; forest pests and their biological control in, **301, 302**; Aphids on potato in, **11, 109**; strawberry pests in, **98**; *Popillia japonica* in, **99**.  
*novae-scotiae*, *Mediolata*.  
*nubilalis*, *Pyrausta*.  
*nucum*, *Curculio* (*Balaninus*).  
*nudatus*, *Steatococcus*.  
Nun Moth (see *Lymantria monacha*).  
*nüsslini*, *Dreyfusia* (see *Chermes nordmannianae*).  
Nyasaland, cotton pests in, **342**.  
*Nyctobia limitaria*, on conifers in Canada, **269**; immature stages of, **268, 269**.  
Nylon, factors affecting damage to, by insects, **45**.  
*Nysius*, plants attacked by, in Hawaii, **66**.  
*Nysius nemorivagus*, in Hawaii, **66**.  
*Nysius nigriscutellatus*, in Hawaii, **66**.  
*Nysius vinitor* (in Australia), on cauliflower, **217**; susceptibility of potato varieties to, **315**; on stone fruits, **416**; insecticides against, **159, 217, 416**.
- ## O.
- Oak, **235**; Lepidoptera on, in Europe, **73, 331**.  
Oat-grass, Tall (see *Arrhenatherum avenaceum*).  
Oats, thrips on, in Bohemia, **100**; pests of, in Britain, **5, 24, 188, 295, 296**; grasshopper damaging, in Br. Columbia, **34**; pests of, in Italy, **378**; little damaged by *Heteronychus sanctae-helenae* in New South Wales, **190**; Aphid killed by selenium taken up by, **175**; methods and time of sowing of, in relation to pests, **5, 190**; damaged by benzene hexachloride, **418**.  
Oats (Stored), DDT against pests in, **178**; unsuitable for *Calandra granaria*, **386**.  
*Oberea bimaculata*, on raspberry in New York, **140**.  
*oblineatus*, *Lygus*.  
*obliquus*, *Listroderes*.  
*obliterata*, *Aphidecta*.  
*obovatus*, *Tenuipalpus*.  
*obreptus*, *Bruchus* (*Acanthoscelides*).  
*obscura*, *Leucopis*.  
*obscurus*, *Adoxus*; *Rhabdoscelus*; *Volummus*.  
*obsoleta*, *Heliothis* (see *H. armigera*).  
*obtectus*, *Bruchus* (*Acanthoscelides*).  
*occidentalis*, *Frankliniella*; *Pulvinaria*.  
*ocellana*, *Spilonota*.  
*ocellaris*, *Dinoderus*.  
*ocellata*, *Anatis*.  
*ochromelas*, *Calocoris*.  
*Ocneria* (see *Lymantria*).  
*Ocnerodes brunneri*, in Spain, **153**.  
*Ocnogyna baetica* var. *meridionalis*, parasite of, in Morocco and Spain, **155**.  
*Odontria*, parasite of, in New Zealand, **68**.  
*Odontria zealandica*, in New Zealand, **64, 68**; sprays against, on apricot, **64**.  
*Oebia undalis* (see *Hellula*).  
*Oecanthus*, egg-parasite of, on cacao in Brazil, **333**.  
*Oedipoda charpentieri*, in Spain, **153**.  
*Oedipoda coerulescens*, in Spain, **153**.  
Ohio, miscellaneous pests in, **84, 231, 267**.  
*Oiketicus geyeri*, parasite of, in Argentina, **66**.  
Oil Emulsions, against Aleurodids, **67, 80, 107**; against Aphids, **107, 201**.



- 309, 421 ; against Coccids, 6, 33, 34, 49, 55, 107, 114, 149, 196, 199, 221, 273, 291, 298, 317, 353, 354, 355 ; against other Hemiptera, 34, 50, 107, 196, 391, 392 ; against *Cydia pomonella*, 33, 80, 82, 131, 145, 158, 196, 264, 317, 320, 369, 401, 406, 407 ; against other Lepidoptera, 12, 67, 150, 201, 281 ; against Diptera, 2, 94, 242, 298 ; against *Gryllotalpa* spp., 191 ; against mites, 33, 82, 83, 199, 287, 320, 328, 368 ; against *Phylacteophaga eucalypti*, 218 ; types of oil for, 20, 33, 34, 49, 50, 51, 67, 80, 94, 97, 98, 113, 114, 131, 196, 199, 221, 251, 257, 264, 265, 287, 298, 309, 353, 354, 356, 361, 392, 401, 406, 407 ; factors affecting deposits of, 49, 97 ; effect of droplet size of, 389 ; emulsifiers and spreaders for, other than soap, 33, 49, 92, 94, 98, 113, 114, 131, 220, 221, 314, 406, 407 ; stabilisers for, in hard water, 246 ; formulae for, 27, 33, 34, 35, 50, 51, 80, 81, 82, 83, 94, 113, 114, 131, 133, 158, 199, 218, 219, 221, 251, 265, 266, 287, 291, 298, 309, 317, 318, 320, 328, 361, 369, 391, 392, 401, 406, 407, 421 ; formulae containing, 12, 20, 33, 34, 35, 50, 51, 80, 81, 82, 83, 94, 111, 113, 114, 131, 158, 218, 219, 251, 265, 266, 298, 317, 318, 328, 361, 369, 391, 392, 401, 406, 407, 421 ; and bentonite, 81, 82, 98, 319, 320, 361, 407 ; and Bordeaux mixture, 82, 83, 196, 319 ; and carbon bisulphide, 298 ; and cryolite, 33 ; solutions of DDT in oil for, 20, 85, 110, 114, 124, 159, 220, 231, 258, 263, 298, 355, 356 ; preparation of concentrates for DDT in, 220 ; mixtures of DDT and, 27, 67, 81, 82, 83, 98, 110, 158, 251, 264, 265, 266, 318, 319, 320, 328 ; reducing toxicity of DDT, 264 ; and dinitro compounds, 33, 34, 50, 80, 94, 98, 131, 199, 406, 407 ; other organic insecticides in, 33, 119, 189, 190, 421 ; and lead arsenate, 12, 20, 35, 81, 82, 158, 196, 257, 265, 266, 317, 361, 369, 401 ; and nicotine, 12, 33, 51, 67, 98, 196, 218, 219, 242, 257, 266, 319, 320, 391 ; and oleic acid, 51 ; and Paris green, 67 ; and pyrethrum, 51, 391 ; and rotenone insecticides, 12, 49, 51, 67, 113, 114, 392 ; and injury to plants, 55, 80, 97, 98, 113, 159, 189, 298, 319.
- Oil Palm (see *Elais guineensis*).
- Oils, spraying with, against Tettigoniids, 308 ; and supplementary materials, treatment of maize ears with, against *Heliothis armigera*, 408 ; effect of, in baits for *Popillia japonica*, 119 ; as conditioning agent for dusts, 199, 254, 263, 393 ; as solvents or supplements for DDT sprays or aerosols, 35, 85, 111, 113, 114, 121, 177, 178, 203, 255, 256, 260, 397, 412 ; as solvents for other organic compounds in sprays, 113, 119, 203, 416, 417 ; preparation and storage of cubé extract in, 49 ; treatment of timber and soil with DDT or creosote in, against termites, 399 ; treatment of bamboo culms with creosote or naphthalene and, against Coleoptera, 90, 91, 92 ; causing injury to plants, 255, 397, 408. (See Kerosene.)
- Oils, Essential, in baits for *Cydia pomonella*, 246. (See Eucalyptus Oil.)
- Oils, Vegetable, emulsions of, against *Quadrastipidiotus perniciosus*, 291 ; effect of treating stored pulses with, against Bruchids, 16 ; and creosote, treatment of bamboo culms with, against Coleoptera, 91, 92 ; solutions and emulsified solutions of DDT in, 87, 177, 220 ; polychlorocyclane sulphide in, 421. (See Ground-nut, Linseed, Olive and Soybean Oils.)
- Oinophila v-flavum*, bionomics and control of, damaging wine casks and corks in Germany, 71.
- Oklahoma, cereal pests in, 127, 231 ; miscellaneous pests in, 34, 266, 410 ; orchard pests in, 178, 322, 407.
- oleae*, *Dacus* ; *Liothrips* (*Phloeothrips*) ; *Parlatoria* ; *Saissetia*.
- oleellus*, *Prays*.
- Oleic Acid, uses of, in sprays, 51, 98.
- oleivorus*, *Phyllocoptruta*.
- oleracea*, *Polia*.
- Oligonychus ulmi*, auct. (see *Paratetranychus pilosus*).
- Olive, *Pseudischnaspis bowreyi* on, in Argentina, 66 ; pests of, in Chile, 21, 354 ; pests of, in Italy, 285, 286, 379 ; *Bemisia tabaci* on, in Morocco, 427 ; pests of, in Spain and Portugal, 150, 155, 156 ; Coccids on, in U.S.A., 114, 323.
- Olive Oil, solubility of DDT and analogues in, 203.
- Omorgus difformis*, parasite of *Clysiana ambiguella* in Switzerland, 144.
- Oncopeltus fasciatus*, tests of insecticides on, in Ontario, 185.
- Onion, *Thrips tabaci* on, in Australia, 243, 370 ; new Aphid on stored bulbs and seedlings of, in Britain, 205, 206 ; *Hylemyia antiqua* on, in Br. Columbia 34 ; *T. tabaci* on, in U.S.A., 54, 112, 231.
- Onion Maggot (see *Hylemyia antiqua*).
- Onion Thrips (see *Thrips tabaci*).
- onobrychidis*, *Contarinia*.

- Onobrychis sativa*, *Contarinia onobrychidis* on, in Moravia, 101.  
*onobrychis*, *Macrosiphum (Acyrtosiphon)*.  
*ononis*, *Heliothis*.  
 Ontario, forest pests in, 99, 177, 412 ; orchard pests in, 97, 98, 183, 184, 185 ; miscellaneous pests in, 10, 97, 183-185, 355 ; *Popillia japonica* in, 99 ; *Pyrausta nubilalis* on maize in, 9, 97, 99, 139 ; parasites and biological control of *P. nubilalis* in, 99, 139 ; *Reticulitermes flavipes* in building timber in, 9 ; *Ephestia figulilella* in imported peach stones in, 13.  
*Ooencyrtus*, scope of, 216.  
*Ooencyrtus johnsoni*, parasite of *Chlorochroa sayi* in California, 397.  
*Ooencyrtus prosperis*, sp. n., parasite of *Prospheris aurantiopictus* in Queensland, 216.  
*opaca*, *Silpha (Blitophaga)*.  
*operculella*, *Gnorimoschema (Phthorimaea)*.  
*Operophtera brumata*, in Austria, 331 ; in Czechoslovakia, 100, 331 ; in France, 138 ; bionomics of, on hazel, etc., in Italy, 282-284 ; in Switzerland, 70, 201, 383 ; on fruit trees, 70, 100, 138, 201, 283 ; on oak, 331 ; natural enemies of, 283, 331 ; measures and experiments with insecticides against, 70, 138, 166, 201, 283 ; characters distinguishing *Chloroclystis rectangulata* from, 383.  
*Ophideres* (see *Othreis*).  
*opifera*, *Sarcophaga*.  
*Opuntia*, utilisation of *Dactylopius* against, in S. Australia, 415.  
 Orange, pests of, in Brazil, 106 ; pests of, in Chile, 8, 353 ; *Pulvinaria psidii* on, in Formosa, 322 ; pests of, in Italy, 285, 287 ; pests of, in Mexico, 77, 322 ; *Dialeurodes elongata* on, in Punjab, 187 ; pests of, in Spain, 149 ; pests of, in U.S.A., 125, 127, 140 ; effects on, of lime-sulphur with zinc compounds, 140.  
 Orange, Mandarin or Tangerine, *Aleurocanthus woglumi* on, in Mexico, 77 ; pests of, in Spain, 149.  
*orchidii*, *Anaphothrips*.  
 Orchids, new Curculionid on, in greenhouse in France, 17 ; Coccids on, 321, 322.  
*orchilella*, *Bedellia*.  
*Orcus australasiae*, predacious on *Aonidiella aurantii* in New South Wales, 6.  
*Orcus chalybeus*, predacious on *Aonidiella aurantii* in New South Wales, 6.  
 Oregon, miscellaneous pests in, 297, 300, 322.  
*Orgyia antiqua*, on apple in Chile, 7, 19 ; on shade trees in Nova Scotia, 302 ; outbreak of, on conifers, etc., in Scotland, 189 ; bionomics of, 19, 343 ; natural enemies of, 7, 19, 351.  
*Orgyia gonostigma*, effects of temperature on, 343.  
 Oriental Fruit Moth (see *Cydia molesta*).  
 Oriental Spruce (see *Picea orientalis*).  
*orientalis*, *Aonidiella* ; *Blatta*.  
*Orius*, predacious on *Platyedra gossypiella* in Somalia, 226.  
*ornata*, *Ripersiella*.  
*ornatulus*, *Poecilocapsus*.  
*ornatus*, *Myzus* ; *Poecilocapsus*.  
*Ornithodoros moubata*, tests of insecticide deposits on, 292.  
*Orbanche crenata* (parasitising plants), Agromyzid in seed capsules of, in Portugal, 333.  
*Orphanina scutata*, outbreak and control of, in France, 137 ; in Serbia, 137.  
*Orphanina scutata* var. *azami*, n., 137.  
 Orthochlordiphenyl, action of, in cockroaches, 57.  
 Orthodichlorobenzene, as solvent for DDT, 85.  
*orthogonia*, *Agrotis*.  
 Ortho-oxyquinoline Sulphate, against *Gnorimoschema operculella* in stored potatoes, 289.  
*Orthosia circellaris* (see *Agrochola*).  
*Orthosia lola* (see *Agrochola*).  
*Orthosia stabilis*, bionomics and control of, on cherry in Spain, 150.  
*Orthotylus*, not transmitting beet virus in Argentina, 426.  
 Orvus, 182.  
*Oryctes rhinoceros*, *Scolia ruficornis* imported into Samoa against, 43.  
*oryzae*, *Calandra (Sitophilus)* ; *Latheticus*.  
*Oryzaephilus surinamensis*, fumigation against, in imported ground-nuts in Canada, 30.  
 Osage Orange (see *Maclura pomifera*).  
*Oscinella frit*, in Britain, 188, 214 ; parasite of, 214.  
 Osier (see *Salix viminalis*).  
*Osphilia ikuthana* var. *innotata*, bionomics of, in Senegal, 427.  
*ostreaeformis*, *Quadraspidiotus*.  
*Othnionius batesi*, on wheat in Queensland, 244.  
*Othreis* spp., bionomics and control of, attacking *Citrus* fruits in Gwalior, 374, 375.  
*Otiorrhynchus anthracinus (helveticus)*, spray against, on vines in Switzerland, 145.  
*Otiorrhynchus ligustici*, outbreak of, in France, 137.

- Otiorrhynchus singularis*, on apple in Bohemia, **100**.  
*Ovianus cattleyae*, sp. n., on orchid in France, **17**.  
*ovata*, *Brachymeria*.  
 Oxalic Acid, in dinitroresol sprays, **33**.  
*Oxycaus cervinatus*, bionomics of, in New Zealand, **62-63**.  
*Oxycaus despectus*, damaging pastures and peas in New Zealand, **63**.  
*Oxycaus jocosus*, in New Zealand, **63**.  
*Oxycaus umbraculatus*, in New Zealand, **63**.  
*Oxyops gemella*, on *Eucalyptus sideroxylon* in New South Wales, **316**.  
 Oyster Shell Scale (see *Lepidosaphes ulmi*).

## P.

- Pachycrepoides dubius*, parasite of Tachinids in Brazil, **169**; hosts of, in Fiji, **43**.  
*Pachymerus cassiae*, measures against, in stored ground-nuts in Senegal, **305**.  
*Pachymerus lacerdae* (in oil-palm nuts), in Gold Coast, **90**; in Nigeria, **305**.  
*pachymerus*, *Ichneumon*.  
*Pachyneuron altiscuta*, parasite of *Pseudococcus juniperi* in Kansas, **411**.  
*Pachyrrhizus strigosus*, dust of, against *Gnorimoschema operculella*, **161**.  
*pacificus*, *Neoborus*.  
*pacifolia*, *Dryadula*.  
 Paddy Swarming Caterpillar (see *Spodoptera mauritia*).  
*padellus*, *Hyponomeuta*.  
*padi*, L., *Anuraphis* (*Aphis*).  
*padi*, auct., *Aphis*, *Rhopalosiphum* (see *R. prunifoliae*).  
*Pales pavidus* (see *Neopales*).  
 Palestine, orchard pests in, **214-216**, **273**; miscellaneous pests in, **273**; beneficial insects and biological control in, **216**, **273**.  
*pallens*, *Geocoris*.  
*pallipes*, *Pristiphora*.  
*palmarum*, *Rhynchophorus*.  
 Palms, thrips on, in greenhouses in Moravia, **102**. (See Coconut, Date Palm and *Elaeis*.)  
*paludosa*, *Tipula*.  
 Panama, *Aonidiella orientalis* on coconut in, **323**; parasite of *Aleurocanthus woglumi* introduced into Mexico from, **77**.  
*panici*, *Stenodiplosis*.  
*Panicum crusgalli* (see *Echinochloa*).  
*Panicum miliaceum*, *Stenodiplosis panici* on, in U.S.S.R., **346**.  
*Panolis flammea* (on pine), in Germany, **237**; possibly favouring infestation by *Lymantria monacha*, **237**; dust against, **28**.  
*Panorpa communis*, predacious on *Tortrix viridana* in Central Europe, **331**.  
*Pantomorus godmani*, tests of DDT against, in California, **111**; on *Citrus* in Chile, **353**.  
*Pantomorus taeniatulus*, on *Capsicum* in Chile, **354**.  
*Pantomorus xanthographus*, food-plants and distribution of, in S. America, **8**.  
*Papaipema nebris*, on raspberry in Massachusetts, **410**.  
*Papaver somniferum* (see Poppy).  
*papaveris*, *Aphis* (see *A. fabae*); *Dasyneura*.  
 Papaya, *Anychus latus* on, in Eritrea, **286**; *Aonidiella inornata* on, in Formosa, **323**; *Amblypelta lutescens* on, in Queensland, **275**, **276**; injured by emulsion containing DDT, **159**.  
 Paper Bags, for protecting fruits from insects, **196**.  
*paphi*, *Apanteles*.  
*paphus*, *Protoparce sexta*.  
*Papilio cresphontes*, on *Citrus* in Arizona, **168**.  
 2,2-bis (Parachlorophenyl)-1,1-dichloroethane (see DDD).  
 2,2-bis (Parachlorophenyl)-1,1,1-trichloroethane (see DDT).  
 Paradichlorobenzene, fumigation of rabbit skins with, against *Dermestes*, **67**; method of vaporising against insects, etc., **387**; effects of, in spray against *Psila rosae*, **25**; action of, in cockroaches, **57**.  
*paraensis*, *Azteca*.  
 Paraguay, *Coccinella ancoralis* in, **19**.  
*parallela*, *Bostrychopsis*; *Tiphia*.  
*Paramaecium*, use of, in testing permeability of insect cuticle, **278**.  
*Paramallocera ilinizae*, bionomics and control of, in Ecuador, **18**.  
*paranensis*, *Schistocerca*.  
 Paranitrophenol, action of, in cockroaches, **57**.  
*Paranomia* (see *Nomia*).  
 Paraphenylenediamine, action of, in cockroaches, **58**.  
*Paraphoranthia peruviana*, parasite of *Dysdercus ruficollis* in Peru, **75**.  
*Parasa lepida*, *Spinaria* not ovipositing in, in Ceylon, **3**.  
*Parasitigena segregata*, auct. (see *Phorocera silvestris*).  
*Parasierola*, parasite of *Erechthias fulguritella* in New Zealand, **418**.  
*Parasierola gallicola* (see *Perisierola*).



- Parasites, of insect pests, catalogue of, **200, 376** ; flowering plants promoting increase of, **380**.
- Parastichtis secalis* (see *Apamea*).
- Paratetranychus pilosus* (on fruit trees), in Britain, **189** ; in Canada, **33, 98, 185** ; in Czechoslovakia, **100, 102** ; in New Zealand, **64** ; in Switzerland, **145** ; in U.S.A., **82, 83, 131, 199, 252, 257, 264, 320** ; natural enemies of, **83, 132, 320** ; sprays against, **102, 145, 189, 199, 264, 320** ; effect of benzene hexachloride on, **64, 185** ; DDT increasing infestation by, **33, 64, 82, 83, 98, 131, 152, 264, 320** ; DDT not increasing infestation by, **131** ; DDT temporarily reducing infestation by, **257** ; other sprays possibly increasing infestation by, **33, 320**.
- Paratetranychus yothersi*, DDT increasing infestation of *Buxus* by, in New York, **263**.
- Paratheresia* (see *Theresia*).
- Paratrechina longicornis*, DDT spray against, on *Citrus* in St. Lucia, **92**.
- Paria canella*, in California, **111** ; on strawberry in Canada, **98** ; DDT against, **98, 111**.
- pariana*, *Anthophila* (*Simaethis*).
- Paris Green, ineffective for treating rice seed-beds against *Chironomus*, **353** ; applied to termite mounds, **162** ; in baits, **42, 189, 245, 271** ; dusting with **46, 47, 106** ; in sprays, **12, 65, 67, 75, 105, 106, 107, 145, 154, 197** ; as dip for sweet potato cuttings, **67** ; adhesives for, **107** ; and lead arsenate, **105** ; and lime, **107, 154, 197** ; and nicotine, **67** ; and oil emulsion, **67** ; and sugar, **65** ; and sulphur, **46, 47** ; plants injured by, **67, 154**.
- Parlatoria oleae*, on *Citrus* in Argentina, **66** ; food-plants of, in California, **114** ; DDT ineffective against, **114**.
- Parsley, virus transmitted to, by *Hyadaphis sii*, **172**.
- Parsnip, *Depressaria heracleana* on, in Br. Columbia, **34** ; experiments with virus diseases and, in California, **171, 172**.
- Parsnip Web-worm (see *Depressaria heracleana*).
- parthenopea*, *Encarsia*.
- Parthenocissus*, *Pulvinaria innumerabilis* on, in U.S.A., **322**.
- Parthenothrips dracaenae*, on greenhouse plants in Moravia, **102**.
- parvipennis*, *Dasycapus*.
- Paspalum*, *Gastrimargus musicus* damaging, in W. Australia, **222** ; Cercopid on, in Brazil, **86**.
- Paspalum dilatatum*, *Heteronychus sanctae-helenae* on, in New South Wales, **190**.
- Passalus cornutus* (see *Popilius disjunctus*).
- Passiflora edulis*, pests of, in Queensland, **246, 276, 368**.
- Passiflora quadrangularis*, *Amblypelta lutescens* on, in Queensland, **275**.
- passiflorae*, *Dacus*.
- Passion Fruit (see *Passiflora edulis*).
- Passion-fruit Mite (see *Tenuipalpus californicus*).
- Pastures (see Grasses).
- paucispinosa*, *Frankliniella*.
- paucitatis*, *Hemiberlesia* (*Aonidiella*).
- paulistus*, *Eretmocerus*.
- pavida*, *Neopales* (*Pales*).
- PCH Dust, **299**.
- Pea, *Mamestra brassicae* on, in Bulgaria, **385** ; pests of, in Denmark, **348** ; *Otiorrhynchus ligustici* on, in France, **137** ; pests of, in Moravia, **101** ; *Oxycaus despectus* on, in New Zealand, **63** ; thrips on, in Peru, **76** ; *Cydia nigricana* on, in Quebec, **12** ; *Macrosiphum onobrychis* on, in Rumania, **286** ; pests of, in U.S.A., **113, 181, 200, 230, 255, 256, 258, 300** ; relation of *M. onobrychis* to mosaic of, **200, 300, 301** ; effect of DDT preparations on, **255, 257** ; (stored), *Bruchus pisorum* in, **268** ; *Tinea* spp. reared on dried, **72**.
- Pea, Chick (see *Cicer arietinum*).
- Pea, Pigeon (see *Cajanus cajan*).
- Pea Aphis (see *Macrosiphum onobrychis*).
- Pea Bruchid (see *Bruchus pisorum*).
- Pea Moth (see *Cydia nigricana*).
- Peach, pests of, in Australia, **159, 219, 371, 372, 415** ; *Tetranychus telarius* on, in Britain, **310** ; *Lygus oblineatus* on, in Br. Columbia, **34** ; *Pantomorus xanthographus* on, in Chile, **8** ; pests of, in Crimea, **314** ; *Paramallopera iliniae* on, in Ecuador, **18** ; pests of, in France, **195, 280, 290, 291** ; *T. telarius* on, in Italy, **287** ; experiments with *Anastrepha serpentina* and, in Mexico, **321** ; pests of, in Moravia, **101** ; *Myzus persicae* on, in Switzerland, **381** ; pests of, in U.S.A., **84, 130, 176, 248, 249, 251, 252, 258, 321, 322, 325, 356, 357, 360, 403** ; factors affecting infestation of, by *Cydia pomonella*, **195** ; insects causing deformation of fruits of, **84, 176, 248, 249** ; effect of *Quadraspidiotus perniciosus* on, **280** ; *Rhopalosiphum prunifoliae* on, **295** ; effects of insecticide treatments on, **70, 290, 291** ; *Ephestia figulilella* in imported stones of, in Ontario, **12**.
- Peach Borer, Lesser (see *Aegeria pictipes*).

- Peach Moth, Oriental (see *Cydia molesta*).
- Pear, *Cydia pomonella* on, in Algeria, 196 ; pests of, in Australia, 160, 368, 369, 415 ; *Contarinia pyrivora* on, in Britain, 94 ; pests of, in Canada, 33, 34, 97, 184, 336 ; insects on, in Chile, 7, 20 ; pests of, in Czechoslovakia, 100, 101, 102 ; *Paramallocera ilinizae* in, in Ecuador, 18 ; pests of, in France, 195, 196, 225, 280 ; pests of, in Italy, 201, 281, 282, 379 ; *Bemisia tabaci* on, in Morocco, 427 ; pests of, in Switzerland, 69, 145, 383 ; pests of, in U.S.S.R., 197, 313 ; pests of, in U.S.A., 57, 113, 131, 257, 322, 323 ; winter food-plant of *Rhopalosiphum crataegellum*, 295 ; insecticides causing injury to, 97, 113 ; residue tolerance for DDT on fruit of, in U.S.A., 110.
- Pear Bud Mite (see *Eriophyes pyri*).
- Pear Midge (see *Contarinia pyrivora*).
- Pear Psylla (see *Psylla pyricola*).
- Pear Root Aphid (see *Eriosoma lanuginosum*).
- Pear Thrips (see *Taeniothrips inconsequens*).
- Pecan, pests of, in U.S.A., 54, 58, 179, 265.
- Pecan Nut Casebearer (see *Acrobasis caryae*).
- Pectinophora gossypiella* and *scutigera* (see *Platyedra*).
- pectoralis*, *Mesochorus*.
- Pediculoides ventricosus* (attacking *Platyedra gossypiella*), experiments with, in Mexico, 388 ; in Somalia, 226.
- Pediculus humanus*, tests of insecticides on, 203, 292.
- Pegomya hyoscyami* (var. *betae* on mangels and beet), bionomics of, in Britain, 188 ; in Czechoslovakia, 100, 101 ; in Switzerland, 147.
- pelargonii*, *Macrosiphum*.
- Pelargonium*, Agromyzid attacking *Orobanche* on, in Portugal, 333.
- pelleranoi*, *Eucoila*.
- pellucida*, *Lambdina athasaria*.
- Pelonium amoenum*, predacious on *Phoracantha semipunctata* in Argentina, 333.
- Peltophorum*, *Amblypelta lutescens* on, in Queensland, 276.
- pendula*, *Lonchaea*.
- Penicillium*, treatment of cultures of, against mites, 193.
- peniculo*, *Keiferia*.
- peninsularis*, *Pulvinaria*.
- Pennisetia marginata*, bionomics and control of, on raspberry in New York, 140.
- Pennisetum*, Cercopid on, in Brazil, 86.
- Pennisetum clandestinum*, resistance of, to *Heteronychus sanctae-helenae* in New South Wales, 191.
- Pennisetum typhoideum*, *Trogoderma granarium* in stored, 69.
- Pennsylvania, *Formica exsectoides* in, 125 ; orchard pests in, 57, 409 ; *Popillia japonica* on maize in, 53 ; Reduviid destroying *P. japonica* in, 230.
- pennsylvanicus*, *Camponotus herculeanus*.
- Pentachlorophenol, treatment of timber with, against *Lyctus*, 305.
- pentagona*, *Pseudaulacaspis*.
- Penthaleus major*, bionomics and control of, on ground-nuts in Queensland, 315.
- Pentilia misella*, predacious on *Chionaspis furfura* in New York, 199.
- Pentodon punctatus*, on cotton in Sicily, 419.
- Pentosans, removal of, possibly rendering wood favourable to *Hylotrupes*, 351.
- Peperita euthysticha*, bionomics and control of, on mango in Queensland, 221.
- Peppers (see *Capsicum*).
- Peptone, influence of mixture containing, on growth of *Ergates faber*, 332.
- Peregrinus maidis*, Coccinellids predacious on, on sorghum in Bombay, 4.
- Peridroma saucia*, on lucerne in Kansas, 363 ; bionomics of, on greenhouse plants in Scotland, 189.
- Perilampus similis*, parasite of *Cremnops vulgaris* in N. America, 295.
- Periplaneta*, formation of cuticle of, 203.
- Periplaneta americana*, use of, for insecticide tests, 57, 116, 120, 126.
- Perisierola gallicola*, parasite of *Ancylys selenana* in Italy, 380.
- Perissocentrus porteri*, parasite of *Orgyia antiqua* in Chile, 19.
- Peritymbia* (see *Phylloxera*).
- Perkinsiella saccharicida*, transmitting Fiji disease of sugar-cane in Queensland, 368.
- Perkinsiella vitiensis*, *Cyrtorhinus mundulus* feeding on eggs of, on sugar-cane in Fiji, 43.
- pernicius*, *Mesochorus* ; *Quadraspidotus* (*Aonidiella*, *Aspidiotus*).
- Peronospora tabacina* (Blue Mould of Tobacco), sprays against, in N. Carolina, 52.
- persicae*, *Myzus* (*Myzodes*).
- persicae-niger*, *Anuraphis*.
- Persimmon, Coccids on, in Japan and U.S.A., 322.
- Peru, miscellaneous pests in, 21, 75, 76 ; beneficial insects and biological control in, 21, 75, 76 ; probable spread of insects into Chile from, 21, 354.

- peruella*, *Mescinia*.  
*peruviana*, *Acaulona*; *Paraphoranthia*.  
*peruvianus*, *Dermestes*.  
 Petrol, fumigation with, not affecting viability of maize seed, 1; sprays containing, 16, 17, 150; in mixture against *Chironomus* in rice seed-beds, 353.  
*Petunia*, experiments with insects and, 143, 173.  
*Peucedanum graveolens* (see Dill).  
*Phacellura indica* (see *Margaronia*).  
*Phaedon cochleariae*, on crucifers in Britain, 310; tests of insecticides against, 166, 310.  
*Phaenocodexia edwardsii*, parasite of *Catocephala amphinome* in Chile, 7.  
*Phaiae*, *Pulvinaria*.  
*Phalaris tuberosa*, resistance of, to *Heteronychus sanctae-helenae* in New South Wales, 191.  
*Phaleria bucephala*, on *Salix viminalis* in Czechoslovakia, 102.  
*Phalerata*, *Campsomeris*.  
*Phanerotoma tibialis*, utilisation of, against *Cydia nigricana* in Washington, 297.  
*pharaonis*, *Monomorium*.  
*Phaseoli*, *Agromyza* (*Melanagromyza*); *Trifidaphis*.  
*Phaseolus* (see Beans).  
*Phaulacridium vittatum*, plants attacked by, in Australia, 216, 222; measures against, 216.  
*Pheidole megacephala*, measures against, in houses in Australia, 161, 371.  
*Phenacaspis* (*Chionaspis*) *dilatata*, spray against, on mango in Queensland, 221.  
*Phenacoccus aceris* (on apple), in Canada, 13, 33; in Moravia, 101; sprays against, 33.  
 Phenol (Carbolic Acid), action of, in cockroaches, 57; tests of, as bee repellent in insecticides, 60, 297.  
 Phenothiazine, against Aphids, 421; action of, in cockroaches, 57; against Coleoptera, 143, 337, 395; against Lepidoptera, 33, 108, 161; against *Rhagoletis cingulata*, 297; possibly favouring infestation by *Paratetranychus pilosus*, 33; dusting with, 161, 337; spraying with, 33, 108, 161, 297, 421; used with oil and casein-lime, 33; unsatisfactory for treating stored maize ears, 395.  
 Phenothioxin (Phenoxathiin), treatment of stored maize ears with, against *Calandra oryzae*, 395; micronised form of, 395.  
 Phenylacetaldehyde, insects attracted to bait containing, 145.  
 Phenyl Ethyl Butyrate, in baits for *Popillia japonica*, 119, 261.  
 Phenylhydrazines, toxicity of N-substituted, to *Cydia pomonella*, 409.  
 Phenyl Isobutyrate, in baits for *Popillia japonica*, 261.  
 Phenyl Isovalerate, in baits for *Popillia japonica*, 261.  
*philadelphia*, *Aphis*.  
*Philadelphus*, identity of black Aphids on, 39.  
*Philaenus leucophthalmus*, insecticides against, on strawberry and lucerne in New York, 199, 393; on wheat, etc., in Ohio, 84; bionomics of, 393.  
 Philippine Is., *Aonidiella* spp. in, 322, 323.  
*phillyreae*, *Siphoninus*.  
*Phleum pratense*, *Macrosiphum dirhodum* on, in Scotland, 188.  
*Phloeophagosoma cucurbitae*, on water-melon in Senegal, 427.  
*Phloeothrips oleae* (see *Liothrips*).  
*Phlogophora meticulosa*, on greenhouse chrysanthemum in Scotland, 189.  
 Phlox, thrips on, in Maine, 23.  
*Phlyctaenia rubigalis* (Greenhouse Leaf-tier), tests of insecticides against, in Canada and U.S.A., 99, 180, 183; on chrysanthemum, 180.  
*phoenicis*, *Tenuipalpus* (see *T. californicus*).  
*Phoma dalmatica* (see *Macrophoma*).  
*Phoracantha semipunctata*, bionomics of, on *Eucalyptus globulus* in Argentina, 333, 334.  
*Phorocera caesifrons*, bionomics of, in Italy, 283.  
*Phorocera silvestris*, parasite of *Lymantria monacha* in Germany, 236, 237, 241; effect of insecticides on, 241.  
*Phragmites*, lack of, causing *Tettigella viridis* to oviposit in fruit trees, 224.  
*Phryxe* (see *Zenillia*).  
*Phthorimaea operculella* (see *Gnorimoschema*).  
*phthorimaeae*, *Chelonus*.  
*Phygadeuon rozsygali*, sp. n., parasite or hyperparasite of *Stenocarus fuliginosus* in Czechoslovakia, 329.  
*Phylactophaga eucalypti*, spray against, on *Eucalyptus* and *Tristania* in New South Wales, 218.  
*phyllochroma*, *Chrysopa*.  
*Phyllocnistis citrella*, bionomics and control of, on *Citrus* in Punjab, 373.  
*Phyllocoptes cornutus* (see *Vasates*).  
*Phyllocoptes destructor* (see *Vasates*).  
*Phyllocoptes* (*Eriophyes*) *gracilis*, on raspberry in Scotland, 5; types of damage to fruits of loganberry and raspberry by, in Washington, 130, 298.



- Phyllocoptes lycopersici*, on greenhouse tomatos in Tasmania, 137.
- Phyllocthruta oleivorus*, sulphur against, on *Citrus* in Argentina, 65.
- Phyllochroma germanica* (see *Blattella*).
- Phyllopertha horticola* (see *Anomala*).
- Phyllophaga* (see *Lachnosterna*).
- Phyllotoma nemorata*, on birch in Nova Scotia, 302.
- Phyllotreta*, dusts against, on crucifers in Britain, 303.
- Phyllotreta australis*, on turnip in Queensland, 243.
- Phyllotreta undulata*, on beet in Switzerland, 147.
- Phylloxera vastatrix* (see *P. vitifoliae*).
- Phylloxera vitifoliae* (on vines), in Mexico, 22; outbreak of, in Peru, 21; in Spain, 270; measures against, 21, 22.
- Phylus* spp., importance and control of, on *Corylus avellana* in Czechoslovakia, 103.
- Phymatocera aterrima*, tests of insecticides against, 166.
- Phyrdenus muriceus*, on tomato and *Capsicum* in Argentina, 66.
- Physalis lanceolata*, relation of *Epitrix tuberis* to, in Nebraska, 335.
- Physalis viscosa*, experiments with *Gnorimoschema operculella* and, in France, 289.
- Physcia varicornis*, parasite of *Chionaspis fursura* in New York, 199.
- Phytomonas rubrilineans*, favouring infestation of sugar-cane by *Rhabdoscelus obscurus* in Queensland, 367.
- Phytomyza atricornis*, on tomato and lettuce in Britain, 327.
- Phytomyza solani* (see *Liriomyza*).
- Phytophaga destructor* (see *Mayetiola*).
- Phytophthora infestans* (infesting potato), in Br. Columbia, 44; in Maine, 253; in Switzerland, 289; sprays against, 44, 253.
- Phytoptus avellanae*, on hazel in Italy, 283.
- Picea* (see Spruce).
- Picea abies*, galls of *Chermes cooleyi* not found on, 308.
- Picea glauca*, *Harmoloma fumiferana* on, in New Brunswick, 9, 99.
- Picea orientalis*, *Ips sexdentatus* and *Ceratostomella* in, in Turkey, 39, 40.
- Picea sitchensis*, *Chermes cooleyi* on, in Britain, 308.
- piceae*, *Chermes* (*Adelges*, *Dreyfusia*).
- piceaperda*, *Dendroctonus*.
- piceus*, *Attagenus*.
- Picrasma excelsa*, insecticidal properties of, 103.
- Picrasmin*, 103.
- Picromerus bidens*, predacious on *Bupalus piniarius* in Germany, 74.
- picta*, *Ceramica*.
- picticornis*, *Xenidea*.
- pictipes*, *Aegeria*.
- Pieris brassicae* (on crucifers), in Britain, 309, 310; parasites and hyperparasites of, in Europe, 155, 351-353; other natural enemies and diseases of, 352; tests of insecticides against, 166, 309, 310.
- Pieris rapae* (on crucifers), in Australia, 160, 162, 217, 242; in Britain, 309, 310; in Canada, 97; in New York, 199, 352; in New Zealand, 64; utilisation of *Apanteles glomeratus* against, 162, 242; insecticides against, 64, 97, 160, 162, 199, 217, 252, 309, 310.
- Piesma cinerea*, not transmitting yellow wilt virus of beet, 426.
- Pigs, suggested use of, against *Acantholyda pinivora*, 330.
- pilosella*, *Campsomeris*.
- pilosus*, *Paratetranychus*.
- Pimpinella anisum*, celery virus transmitted to, 171.
- Pimpla*, species of, parasitising *Ancylys selenana* in Italy, 380.
- Pimpla brassicariae* (see *Apechthis compuncator*).
- Pimpla capulifera* (see *Apechthis*).
- Pimpla examiner* (see *P. turionellae*).
- Pimpla inquisitor* (see *Ephialtes*).
- Pimpla instigator*, parasite of *Lymantria monacha* in Germany, 237; parasite of *Pieris brassicae* in Spain, 155.
- Pimpla maculator* (see *Itoplectis*).
- Pimpla pomorum* (see *Ephialtes*).
- Pimpla roborator* (see *Ephialtes*).
- Pimpla rufata* (see *Apechthis*).
- Pimpla turionellae*, parasite of *Lymantria monacha* in Germany, 237; parasite of *Operophtera brumata* in Italy, 283.
- Pimpla viduata* (see *Itoplectis*).
- Pine, pests of, in Australia, 247; pests of, in Canada, 59, 99; pests of, in Chile, 7; pests of, in Czechoslovakia, 101, 329; pests of, in Germany, 73, 212, 233, 235, 236, 237, 238, 329, 349; pests of, in New Zealand, 418; pests of, in Poland, 27, 28; pests of, in Portugal, 333; *Ips sexdentatus* on, in Turkey, 39; pests of, in U.S.A., 48, 79, 361; (timber), Coleoptera in, 332, 350; treatment of, for rearing termites, 333.
- Pine, Jack (see *Pinus banksiana*).
- Pine, Lodgepole (see *Pinus contorta*).
- Pine, Scots (see *Pinus sylvestris*).

- Pine Distillates, against *Tribolium confusum* in soap powder, **410**; as solvents for DDT, **85**.
- Pine Noctuid (see *Panolis flammea*).
- Pineapple, pests of, in Florida, **55, 56**; *Amblypelta lutescens* on, in Queensland, **275**.
- Pineapple Mite (see *Stigmaeus floridanus*).
- pini*, *Dendrolimus*.
- piniarius*, *Bupalus*.
- piniwora*, *Acantholyda*.
- Pinnaspis minor*, food-plants and control of, in Chile, **354**; probable spread of, into Chile from Peru, **354**; on *Cordia interrupta* in Mauritius, **2**.
- Pinus* (see Pine).
- Pinus banksiana*, *Harmoloba fumiferana* on, in Canada, **99**; *Acantholyda erythrocephala* on, in Germany, **349**; pests of, in U.S.A., **48, 79**.
- Pinus contorta*, *Recurvaria milleri* on, in Canada, **89**.
- Pinus pinaster*, pests of, in Portugal, **333**.
- Pinus radiata*, pests of, in New Zealand, **418**; pests of, in Queensland, **247**.
- Pinus strobus*, *Acantholyda erythrocephala* on, in Connecticut, **361**.
- Pinus sylvestris*, *Orgyia antiqua* on, in Britain, **189**; *Acantholyda erythrocephala* on, in Germany, **349**; *Ips sexdentatus* on, in Turkey, **39**.
- Pionea forficalis* (see *Mesographa*).
- Piper betle*, *Aonidiella inornata* on, in Hawaii, **323**.
- Piperine, spraying with, against Lepidoptera, **298**.
- Piperonyl Cyclohexanone, and pyrethrum marc, dusting with, against insects, **262**.
- piri*, *Anthonomus*.
- Pirox, **147**.
- pisi*, *Macrosiphum* (see *M. onobrychis*).
- pisorum*, *Bruchus*.
- Pistacia vera* (Pista), development of *Trogoderma granarium* on, in Punjab, **69**.
- Pittosporum tobira*, *Asterolecanium arabidis* on, in California, **325**.
- Plaesus javanus*, utilisation of, against *Cosmopolites sordidus* in Tahiti, **43**.
- plagiata*, *Tiracola*.
- Plant Pest Legislation, in Britain, **194**; against *Quadraspidiotus perniciosus* in Switzerland, **201**; modification of, against *Pyrausta nubilalis* in U.S.A., **364**.
- Plants, bibliography of, as sources of insecticides, **428**.
- Platyedra gossypiella* (Pink Cotton Boll-worm), **23**; in Italy and Sicily, **419**; in Mexico, **50, 182, 387, 388**; in Nigeria, **342**; in Somalia, **226, 227**; in Sudan, **340**; in Tanganyika, **341, 342**; in Texas, **50**; bionomics of, **226, 388**; alternative food-plants of, **50, 227**; natural enemies of, **226, 227, 388, 420**; attempted biological control of, **388**; other measures against, **182, 226, 388**.
- Platyedra scutigera*, question of overwintering and control of, in Queensland, **273**.
- Platylabus histrio*, parasite of *Bupalus piniarius* in Germany, **74**.
- Platymoideus acutus*, transmitting virus disease of lucerne in Washington, **297**.
- Platyplectrus nataadae*, host and parasite of, in Ceylon, **3**.
- Platyus compositus*, on *Citrus* in Florida, **115**.
- Platypus sulcatus*, on avocado in Argentina, **65**.
- plebeiana*, *Crocidosema*.
- Plesiocoris rugicollis*, DDT against, on apple in Britain, **27**.
- pleurostigma*, *Ceuthorrhynchus*.
- Pleurotropis*, key to, of Ethiopian Region, **227**; hyperparasite of *Rhopobota naevana* in Italy, **282**.
- Plodia interpunctella*, measures and experiments against, in stored products, **30, 78, 178**.
- Plum, pests of, in Australia, **219, 246, 415**; pests of, in Crimea, **314**; pests of, in Czechoslovakia, **100, 101, 102**; pests of, in Italy, **281, 379**; *Hoplocampa* on, in Switzerland, **145**; pests of, in U.S.A., **321, 322, 357**; not suitable food-plant for *Chloroclystis rectangulata*, **383**.
- Plum Aphis, Mealy (see *Hyalopterus arundinis*).
- Plum Curculio (see *Conotrachelus nenuphar*).
- Plumeria*, *Amblypelta lutescens* on, in Queensland, **275**; *Pseudosphinx tetrio* on, in St. Lucia, **92**.
- plumosus*, *Chironomus*.
- Plusia brassicae* (on crucifers), in Canada, **97**; in New York, **199, 252**; insecticides against, **97, 199, 252**.
- Plusia egena*, on *Mentha spicata* in Argentina, **66**.
- Plutella maculipennis* (on crucifers), in Australia, **160, 162, 217, 242**; in Britain, **309, 310**; in Canada, **97, 183**; in New York, **199, 252**; in New Zealand, **14**; in St. Lucia, **93**; fungus infesting, **242**; insecticides against, **14, 93, 97, 160, 162, 183, 199, 217, 242, 252, 309, 310**.
- Podagrica puncticollis*, on cotton in Sudan, **340**.
- Podagrion*, key to, of Ethiopian Region, **227**.

- podisi*, *Telenomus*.  
*Podisus nigrolimbatus*, bionomics and suggested utilisation of, in Chile, 7.  
*Podocarpus macrophylla*, *Aonidiella taxus* on, in California and Japan, 323.  
*Poecilopsus ornatus* [sic ? *ornatulus*], bionomics and control of, on *Cinchona* in Guatemala, 22.  
*poecilopus*, *Habrocytus*.  
 Poison Hemlock (see *Conium maculatum*).  
 Poland, *Acantholyda pinivora* and its natural enemies in, 27, 28 ; hyperparasites of *Pieris brassicae* in, 352.  
*Polia oleracea*, measures against, on greenhouse tomatoes in Britain, 328.  
*Polianthes tuberosa*, thrips on, in U.S.A., 23.  
*Polistes fuscatus*, tests of gases from lime-sulphur on, 58.  
*Pollenia rudis*, toxicity of DDT residues to, in New York, 257.  
 Pollination, of lucerne, insects causing, 174, 363 ; of maize, effect of *Popillia japonica* on, 53.  
*Polyblastus flavicauda*, parasite of *Pristiphora abietina* in Germany, 331.  
 Polychlorocyclane Sulphides, in sprays against insects, 313, 421.  
*Polychrosis botrana* (on vines), bionomics of, in France, 278 ; in Switzerland, 145, 198 ; insecticides against, 145, 198, 278, 279.  
*Polygonum convolvulus*, *Aphis fabae* on, 39.  
*Polygonum lapathifolium*, Aphids on, in Maine, 230.  
*Polygonum persicaria*, *Myzus ascalonicus* on, in greenhouses in Britain, 206.  
 Polyhedral Disease, of Lepidoptera, 51, 236.  
*pomaria*, *Typhlocyba*.  
 Pomegranate, *Indarbela quadrinotata* on, in India, 373 ; *Bemisia tabaci* on, in Morocco, 427 ; *Leptoglossus zonatus* transmitting *Nematospora* to, in U.S.A., 168.  
*pometaria*, *Alseophila*.  
*pomi*, *Aphis* ; *Seiulus*.  
*pomonella*, *Cydia* (*Carpocapsa*, *Laspeyresia*) ; *Rhagoletis*.  
*pomorum*, *Anthonomus* ; *Ephialtes* (*Pimpla*).  
*Popilius disjunctus*, tests of gases from lime-sulphur on, 58.  
*Popillia japonica*, in Canada, 99, 302 ; in U.S.A., 51, 53, 119, 128, 230, 252, 260, 261, 268, 337, 338, 356, 357, 361, 363, 389, 390 ; effect of, on maize, 53, 337 ; factors influencing populations and spread of, 337, 338, 357 ; traps for, 99 ; in aircraft, 99 ; Reduviid predacious on, 230 ; parasites and biological control of, 337, 338, 357, 361 ; diseases of, and their utilisation, 51, 261, 337, 338, 356, 357, 389, 390 ; baits for, 119, 260, 261 ; treatment of plants against adults of, 252, 337, 361 ; other measures against, 99, 128, 168, 363.  
*popilliavora*, *Tiphia*.  
 Poppy, pests of, in Czechoslovakia, 100, 102, 329.  
 Popular Names (of insects), list of, in Britain, 194.  
 Population Studies (of insects), 118, 238, 239.  
*Populus tremuloides*, *Malacosoma disstria* on, in New Brunswick, 9.  
*Poria contigua*, accelerating development of *Ergates faber*, 332.  
 Port Orford Cedar (see *Chamaecyparis lawsoniana*).  
*porteri*, *Dichroplus* ; *Perissocentrus*.  
*Porthetria* (see *Lynantria*).  
 Porto Rico, *Aonidiella orientalis* in, 323 ; *Calandra oryzae* in, 395 ; *Kaloterms brevis* in, 375.  
 Portugal, pests of olive in, 155, 156 ; Agromyzid in seed capsules of *Orobanche* in, 333 ; Lepidoptera on pine in, 333 ; Diptera in rice-fields in, 353.  
*postica*, *Dacnusa* (see *D. gracilis*).  
*postvittana*, *Tortrix*.  
 Potassium Dinitro-o-cresylate, 233.  
 Potassium Fluosilicate, dusting with, against *Epitrix*, 297.  
 Potassium Hexafluoroaluminate, and sulphur, dusting with, against *Anthonomus signatus*, 122 ; formula containing, 122.  
 Potassium Nitrate, uses of, to facilitate combustion, 38, 212.  
 Potassium Sulphocarbonate, soil fumigation with, against *Phylloxera*, 22.  
 Potato, pests of, in Argentina, 66 ; pests of, in Australia, 156, 157, 159, 160, 161, 162, 241, 242, 243, 274, 276, 315, 316 ; pests of, in Britain, 4, 24, 206, 207, 310 ; pests of, in Canada, 11, 12, 13, 34, 43, 44, 59, 97 ; *Calocoris* spp. on, in Czechoslovakia, 104 ; *Gnorimoschema operculella* on, in Eritrea, 135 ; *Agrotis ypsilon* on, in Fiji, 43 ; pests of, in France, 137, 138, 289, 291, 312, 422 ; *Leptinotarsa decemlineata* on, in Germany, 74 ; *Macrosiphum solanifolii* on, in Hawaii, 66 ; pests of, in Italy, 287, 288 ; Aphids on, in Latvia, 350 ; *Lachnosterna* on, in Mexico, 334 ; pests of, in Palestine, 273 ; *Psylliodes affinis* on, in Russia, 41 ; pests of, in Spain, 152, 153 ; *Empoasca lybica* on, in Sudan, 293 ; pests of, in Switzerland, 143, 146, 288



- 289, 385 ; pests of, in U.S.A., 114, 116, 118, 228, 229, 230, 253, 254, 256, 262, 264, 296, 297, 335, 358, 359, 405 ; Aphids and virus diseases of, 156, 157, 161, 206, 207, 312, 350, 381 ; question of vector and identity of purple-top virus of, 97 ; susceptibility of varieties of, to virus diseases, 157, 206, 207 ; susceptibility of varieties of, to *Nysius vinitor*, 315 ; favouring oviposition by *Hylemyia coarctata*, 165 ; DDT spray not injuring, 257 ; absorption of Dithane by, from soil, 359 ; (tubers), restrictions on importation of, into Britain, 194 ; *G. operculella* in, 136, 152, 241, 276, 289 ; rearing of *Macrocentrus ancylovorus* on *G. operculella* in, 129, 409 ; probable source of bacteria infecting *G. operculella*, 130 ; as bait for *Limonijs agonus*, 358.
- Potato Aphis (see *Macrosiphum solanifolii*).
- Potato Beetle, Colorado (see *Leptinotarsa decemlineata*).
- Potato Flea-beetles (see *Epitrix cucumeris*, *E. subcrinita* and *E. tubensis*).
- Potato Late Blight (see *Phytophthora infestans*).
- Potato Leafhopper (see *Empoasca fabae*).
- Potato Tuber Moth (see *Gnorimoschema operculella*).
- PP. 666, 303, 304.
- praecox*, Sciara.
- praefica*, *Prodenia*.
- praetiosa*, Bryobia.
- pratensis*, *Formica rufa*.
- Prays oleellus*, spray against, on olive in Portugal, 155.
- Prenolepis longicornis* (see *Paratrechina*).
- pretiosum*, *Trichogramma*.
- Prickly Pear (see *Opuntia*).
- Prince Edward Island, Aphids on potato in, 11, 109.
- prismaticus*, *Labrorychus*.
- Pristiphora abietina*, bionomics and control of, on spruce in Germany, 330, 331.
- Pristiphora pallipes*, on gooseberry in Moravia, 101.
- Pristomerus*, parasite of *Psara bipunctalis* in Mauritius, 2.
- Privet (*Ligustrum*), Coccids on, in California and Ontario, 114, 325, 335.
- Proceras sacchariphagus*, scarcity of parasites of, on sugar-cane in Mauritius, 1.
- Proceras sticticraspis*, parasite and control of, on sugar-cane in Mysore, 3, 4, 96.
- Proceras venosatus*, parasite and control of, on sugar-cane in Mysore, 3, 4, 96.
- Procissio cana*, parasite of *Chlorochiton* in New Zealand, 68.
- Prodenia litura*, plants attacked by, in Fiji, 43 ; on maize in Mauritius, 1 ; measures against, on potato, etc., in Palestine, 273 ; on cotton in Somalia, 226.
- Prodenia praefica*, on lucerne in California, 111 ; effect of DDT on, 111.
- Prolasioptera* (see *Lasioptera*).
- prolixus*, *Rhodnius*.
- Propylene Dichloride (Dichloropropane) (see D-D Mixture).
- Propylene Oxide, effects of, in DDT aerosol formulae, 256, 412.
- $\alpha$ -(n-Propyl)piperidine, as synergist for pyrethrum marc, 123.
- Prorops nasuta*, use of, against *Stephanoderes hampei* in Brazil, 105.
- Prosenia nigripes*, parasite of *Dermolepida albobirtum* in Queensland, 29.
- Prospaltella*, parasite of *Dialeurodes citri* in Punjab, 187.
- Prospaltella lahorensis*, 187.
- Prosppheres aurantiopictus*, new parasite of, in Queensland, 216.
- prosppheres*, *Ooencyrtus*.
- Protichneumon* (see *Ichneumon*).
- Protoparce*, parasite of, on tomato in Chile, 355.
- Protoparce quinque maculata* (Tomato Hornworm), DDT against, in Canada, 98.
- Protoparce sexta paphus*, parasite of, on tobacco in Argentina, 66.
- Protopulvinaria* (see *Pulvinaria*).
- Protozoa, in *Oxycaus cervinatus*, 63 ; use of, in testing permeability of insect cuticle, 278.
- Proxate, 30.
- Prune, pests of, in U.S.A., 321, 322.
- pruni*, *Pulvinaria*.
- pruniella*, auct., *Argyresthia* (see *A. ephippella*).
- prunifoliae*, *Rhopalosiphum*.
- Prunus*, *Macropsis* spp. on, in U.S.A., 402 ; wild species of, as winter food-plants of Aphids, 230, 295, 296. (See Cherry, Peach, Plum, etc.)
- Prunus capollin*, *Paramallocera ilinizae* in, in Ecuador, 18.
- Prunus emarginata*, *Rhagoletis cingulata* on, in Washington, 297.
- Psallus seriatus*, dusts against, on cotton in U.S.A., 48, 52, 111, 176, 398.
- Psara bipunctalis* (*mutualis*), parasites of, on *Micania scandens* in Mauritius, 2.
- Pseudabutilon lozani*, *Platyedra gossypiella* on, in Rio Grand Valley, 50.
- Pseudaphycus*, establishment of, against *Pseudococcus comstocki* in Connecticut, 356.

- Pseudaulacaspis pentagona*, on mulberry in Argentina, 65.
- Pseudoholophylla furfuracea*, on sugarcane in Queensland, 29, 367; measures against, 29.
- Pseudischnaspis bowreyi*, on olive in Argentina, 66.
- pseudobrassicæ*, *Rhopalosiphum*.
- Pseudoclavellaria amerinae*, on *Salix viminalis* in Czechoslovakia, 102.
- Pseudococcus*, in Chile, 8, 353, 354; in Palestine, 273; ants associated with, on ground-nuts in Queensland, 316; on *Citrus*, 273, 353; natural enemies and biological control of, 8, 273, 354.
- Pseudococcus adonidum*, on *Annona cherimolia* in Chile, 354; overwintering in thrips galls on *Ficus nitida* in Spain, 152.
- Pseudococcus brevipes*, fumigation against, causing wilt of pineapple in Florida, 55, 56.
- Pseudococcus citri*, in Chile, 8, 353, 354; in Gold Coast, 88; in Mexico, 387; in Spain, 152, 270; in Trinidad, 89; and virus diseases of cacao, 88, 89; overwintering in thrips galls on *Ficus nitida*, 152; on fruit trees, 353, 354, 387; on vines, 270; natural enemies and biological control of, 8, 387.
- Pseudococcus comstocki*, 273; biological control of, on apple in Connecticut, 356; bionomics of, on *Catalpa*, etc., in Ontario, 335.
- Pseudococcus exiliabilis* (see *P. njalensis*).
- Pseudococcus gahani*, establishment of *Coccophagus gurneyi* against, on fruit trees in Chile, 8, 354.
- Pseudococcus juniperi*, bionomics and control of, on *Juniperus* spp. in U.S.A., 410, 411.
- Pseudococcus longispinus* (see *P. adonidum*).
- Pseudococcus njalensis*, transmitting strains of swollen-shoot of cacao in Gold Coast, 88.
- Pseudoholophylla* see *Pseudoholophylla*.
- pseudomagnoliarum*, *Coccus*.
- Pseudopachystylus goniaeoides*, parasite of *Acantholyda pinivora* in Central Europe, 330.
- Pseudoperonospora cubensis*, dust against, infesting cucurbits in Queensland, 275.
- Pseudorhizococcus*, 376.
- pseudosolani*, *Myzus* (see *Macrosiphum solani*).
- Pseudosphinx tetrio*, effects of DDT on, on *Plumeria* in St. Lucia, 92.
- pseudopretella*, *Hofmannophila*.
- Pseudotsuga taxifolia*, *Chermes cooleyi* on, in Britain, 308; *Hylemyia cili-*
- crura* damaging seedlings of, in Washington, 298; injured by mercurous chloride, 299.
- psidii*, *Pulvinaria*.
- Psidium* (see *Guava*).
- Psidium sartorianum*, *Aleurocanthus woglumi* on, in Mexico, 77.
- Psila rosae* (on carrot), in Britain, 24, 25, 26, 207, 213, 214; in Br. Columbia, 365; on celery, 25; bionomics of, 24, 26, 365; parasites of, 213, 214; sampling to estimate infestation by, 207; measures against, 25, 26, 207, 214, 365.
- Psylla buxi*, sprays against, on *Buxus* in New York, 263.
- Psylla mali* (on apple), in Czechoslovakia, 100, 101; in France, 138; sprays against, in Switzerland, 70.
- Psylla pyricola* (on pear), in Bohemia, 100; in Canada, 33, 184, 297; in France, 196; in U.S.A., 297; insecticides against, 33, 184, 196.
- Psylla pyrisuga*, on pear in Moravia, 101.
- Psyllia* (see *Psylla*).
- Psylliodes affinis*, on potato in Russia, 41; on beet in Switzerland, 147.
- Pterocomma bituberculata*, on *Salix viminalis* in Czechoslovakia, 102.
- Pterocomma flocculosa*, on *Salix viminalis* in Czechoslovakia, 102.
- Pteromalus puparum*, parasite of *Pieris brassicae* in Spain and Germany, 155, 352; seldom attacked by hyperparasites, 352.
- Pteronon ribesii* (see *Nematus*).
- Ptychomyia selecta*, parasite of *Tortrix murinana* in Germany, 72, 73.
- puadicus*, *Carpocoris*.
- Pulvinaria*, identity of common species of, 321, 322.
- Pulvinaria acericola*, food-plants of, in U.S.A., 322.
- Pulvinaria amygdali*, on peach in New Mexico, 321; erroneous records of, on fruit trees, etc., in U.S.A., 321, 322.
- Pulvinaria citricola*, food-plants of, in Japan and U.S.A., 322.
- Pulvinaria floccifera*, food-plants of, in France and N. America, 322; erroneously recorded on orchids, 321, 322.
- Pulvinaria hydrangeae*, sp. n., on *Hydrangea* in California, 322.
- Pulvinaria innumerabilis*, status and food-plants of, in U.S.A., 322.
- Pulvinaria occidentalis*, status and food plants of, in N. America, 322.
- Pulvinaria peninsularis*, on orange in Lower California, 322; in Texas, 322.
- Pulvinaria phariae*, on orchids in U.S.A., 322.

- Pulvinaria pruni*, on plum in U.S.A., 322.
- Pulvinaria psidii*, food-plants and distribution of, 322.
- Pulvinaria pyriformis*, on avocado in Argentina, 66.
- Pulvinaria rhois*, on fruit trees, etc., in U.S.A., 32.
- Pulvinaria vitis*, on grape vines in Europe, 322; other species confused with, in U.S.A., 321, 322.
- pulvinosa*, *Dictyneis*.
- pumila*, *Agathis* (*Bassus*); *Fenusa* (see *F. pusilla*).
- pumilionis*, *Chlorops*.
- Pumpkin, pests of, in Australia, 191, 274; pests of, in Fiji, 43; *Tetranychus telarius* on, in Italy, 287; *Cecidomyia citrulli* on, in U.S.A., 408.
- punctata*, *Malvina*.
- punctatum*, *Anobium*.
- punctatus*, *Pentodon*.
- puncticollis*, *Podagrica*; *Trissodon* (*Iso-*  
*don*).
- punctiferalis*, *Dichocrocis*.
- punctillum*, *Stethorus*.
- punctipennis*, *Nabis*.
- punctiventris*, *Cleonus* (*Bothynoderes*).
- Pundaluoya simplicia* (see *Peregrinus maidis*).
- Punjab, pests of *Citrus* in, 186, 187, 373; *Empoasca* spp. on cotton in, 31; *Tetranychus cucurbitae* on vegetables, etc., in, 31; *Trogoderma granarium* in stored wheat in, 68; natural enemies of *Aleurodids* in, 187.
- punjabensis*, *Aleurocanthus* (see *A. woglumi*); *Empoasca*.
- puparum*, *Pteromalus*.
- purchasi*, *Icerya*.
- purpurea*, *Clausenia*.
- purpureipennis*, *Carpocoris* (see *C. pudicus*).
- pusilla*, *Fenusa*.
- pusillus*, *Delphastus*.
- pustulans*, *Asterolecanium*.
- putrescentiae*, *Tyrophagus*.
- putripennella*, *Chrysoclista* (*Blastodacna*).
- Pycnoderes quadrimaculatus*, on beans in Arizona, 167; dusts against, on lima beans in Hawaii, 67.
- pygmaeus*, *Cephus*.
- pyramidoides*, *Amphipyra*.
- Pyrausta nubilalis* (European Corn Borer), in Canada, 9, 10, 97, 99, 139, 268; in Czechoslovakia, 100, 101, 103; in Jugoslavia, 386; in Rumania, 286; in U.S.A., 180, 358, 359; modification of quarantine against, in U.S.A., 364; distribution of hibernating larvae of, in maize stalks, 386; on other crops, 100, 103, 286, 358, 359; strains and possible races of, 10, 103; parasites and biological control of, 99, 139; attempted utilisation of diseases against, 51; low temperature fumigation of broom corn against, 268; field measures and experiments against, 97, 180, 358, 359, 386.
- Pyrax*, 266, 392.
- Pyrax* ABB, 127.
- pyrella*, *Swammerdamia*.
- Pyrethrins*, content of, in *pyrethrum* insecticides, 7, 122, 260, 298, 391, 408, 416.
- Pyrethrum* (including extracts), against ants, 125; unsatisfactory against *Brevicoryne brassicae*, 299; against *Coreids*, 262, 266, 276; against *Mirids*, 51, 84, 225, 355; against other Hemiptera, 84, 141, 225, 262, 292, 391, 416; against *Coleoptera*, 16, 17, 69, 84, 122, 143, 262, 292, 299; soil treatment with, ineffective against *Aphodius*, 328; against *Lepidoptera*, 6, 16, 17, 78, 89, 166, 239, 253, 260, 289, 298, 364, 408; and oil, treatment of maize ears with, against *Heliothis*, 408; against *Orthoptera*, 347; against *Psila rosae*, 25, 96; against sawflies, 166; mode of action of, in insects, 204; toxicity to Arthropods of dry film deposits of, 292; uses of, against pests of stored products, 17, 260, 289; in aerosols, 78, 260, 412; applied from aircraft, 416; dusting with, 84, 122, 141, 143, 225, 229, 239, 253, 262, 266, 276, 299, 347, 355; carriers for, 122, 225, 276, 289, 299; and copper fungicide, 229; and cyclohexanone, 299; and DDT, 229, 260, 298, 412, 416; and oil emulsion, 51, 391; atomised sprays of oil containing, 16, 17, 416; and rotenone insecticides, 143, 262; and soap, 69, 125; and sulphur, 262, 355; proprietary preparations of, 125, 229, 266, 299; other insecticides compared with, 96, 166, 292, 298.
- Pyrethrum* Marc, tests and uses of, in dusts, 122, 123, 253, 262.
- pyri*, *Eriophyes*.
- pyricola*, *Psylla*.
- Pyridine*, stored products treated with, against pests, 35, 241.
- pyriformis*, *Pulvinaria* (*Protopulvinaria*).
- pyrisuga*, *Psylla*.
- pyrivora*, *Contarinia*.
- Pyrocide*, 229, 266.
- Pyrocide* 10, 299.
- Pyroderces coriacella*, on cotton in Somalia, 226.
- Pyroderces rileyi*, on cotton in Peru, 76.
- Pyrogallol*, action of, in cockroaches, 57.



*Pyronota*, parasite of, in New Zealand, 68.

*Pyronota inconstans*, 68.

*Pyrophorus luminosus*, predacious on *Clemora smithi* in Barbados, 22.

Pyrophyllite, mixed with bean seed against *Bruchus obtectus*, 36; as carrier for dusts, 32, 35, 46, 47, 52, 54, 81, 112, 114, 123, 127, 159, 175, 176, 180, 181, 184, 199, 218, 231, 248, 253, 262, 358, 359, 370, 391, 392, 397, 398, 404, 408; composition and particle size of, affecting efficiency of rotenone dusts, 392; spray suspensions of benzine hexachloride in, 182, 183; spray suspensions of DDT in, 47, 81, 82, 83, 158, 182, 183, 231, 252, 318.

*Pyrus aria*, *aucuparia* and *torminalis* (see *Sorbus*).

*pythia*, *Aphaenogaster*.

## Q.

*Quadraspidiotus ostreaeformis*, on apple in Br. Columbia, 98.

*Quadraspidiotus perniciosus*, in Argentina, 65; in Australia, 247, 317; in Austria, 201; in Br. Columbia, 98; in France, 201, 280, 290, 291; in Italy, 201; destroyed by cold in Rumania, 286; precautions against introduction of, into Switzerland, 146, 201; in U.S.A., 84, 298, 304; on almond, 65; on cranberry, 298; on *Citrus*, 291; on deciduous fruit trees, 84, 98, 146, 201, 280, 290, 291, 317; effect of, on peach, 280; on *Eucalyptus*, 247; measures and experiments against, 84, 201, 290, 298, 317, 425; review of data on control of, 304.

*quadridens*, *Ceuthorrhynchus*.

*quadridentata*, *Ascogaster*.

*quadrigemina*, *Chrysomela*.

*quadrigibbus*, *Tachypterellus*.

*quadrinaculata*, *Macropsis*.

*quadrinaculatus*, *Pycnoderes*.

*quadrinotata*, *Indarbela*.

*quadrifurcata*, *Atherigona*.

*quadrifurcatus*, *Exochomus*.

Quarantine, *Aonidiella aurantii* intercepted in, in Fiji, 43.

Quartz, effect of, in dust diluents, 392.

Quassia, sources and active principles of, 103; decomposition of infusions of, 103.

*Quassia amara*, insecticidal properties of, 103.

Quassin, 103.

*quatuordecimstriata*, *Carcinops*.

Quebec, forest pests in, 9, 99; *Cydia nigricana* on peas in, 12; potato Aphids in, 11, 109; parasites and biological control of *Pyrausta nubilalis* in, 99, 139.

Quebracho (from *Quebrachia lorentzii*), little repellent to termites, 375.

Queensland, cereal pests in, 244, 245; cotton pests in, 42, 243, 244, 245, 273, 339; fruit pests in, 221, 222, 245, 246, 275, 368, 412; grasshoppers in, 29, 133, 135, 245; pests of ground-nuts in, 315, 316; lucerne pests in, 271, 272; miscellaneous pests in, 161, 243, 246, 247; sugar-cane pests in, 28, 29, 245, 366, 367, 368; *Perkinsiella saccharicida* transmitting Fiji disease of sugar-cane in, 368; *Gnori-moschema operculella* on tobacco in, 242; pests of vegetables in, 160, 162, 241, 242, 243, 244, 274, 275, 276, 368; pests of stored products in, 168, 241, 245; natural enemies and biological control of insects in, 29, 162, 216, 242, 243, 245, 316, 368; biological control of noxious plants in, 161, 220, 247.

*quercus*, *Lasiocampa*.

Quick-lime, in Paris-green sprays, 107, 197; as emulsifier for tar oil, 150.

Quila Wood (see *Chusquea*).

Quince, *Cydia pomonella* on, in Algeria, 196; *C. pomonella* on, in Chile, 20; pests of, in U.S.A., 199, 322; *Rhopalosiphum crataegellum* on, 295; unsuitable food-plant for *Chloroclystis rectangulata*, 383.

Quince *Curculio* (see *Conotrachelus crataegi*).

*quinquemaculata*, *Protoparce*.

## R.

Rabbit Skins, insects infesting, in Hawaii, 68, 266, 391.

*radcliffei*, *Apatele* (*Apatele*).

*radians*, *Euxoa*.

*Radiococcus*, gen. n., 376.

*Radiolaria* Earth, 23.

Radish, *Phaedon cochleariae* on, in Britain, 310.

Ragi (see *Eleusine coracana*).

Railway Waggon and Trucks, carriage and control of pests in, 28, 30, 99, 273.

Rainfall, relation of locusts to, 344; relation of other insects to, 63, 127, 296.

Raisins (see Fruit, Dried).

*rapae*, *Pteris*.

*rapax*, *Hemiberlesia* (*Aspidiotus*); *Sarcophaga*.

- Rape, pests of, in Britain, **208, 303** ;  
*Meligethes aeneus* on, in Europe, **101, 381** ; effect on bees of insecticide treatments of, **381**.  
 Rape Oil (see Oils, Vegetable).  
*Raphanus raphanistrum*, Aphids on, in Maine, **230**.  
*Raphia hookeri*, weevil imported into Morocco from Ivory Coast in seeds of, **136**.  
*raphiae*, *Leurostethus*.  
*Raphidia*, predacious on *Bupalus piniarius* in Germany, **74**.  
*rapo*, *Tetrastichus*.  
 Raspberry, *Eriophyes gracilis* on, in Britain, **5** ; *Lasioptera rubi* on, in Moravia, **101** ; *Phaulacridium vittatum* damaging, in New South Wales, **216** ; pests of, in New Zealand, **61, 62** ; pests of, in U.S.A., **130, 140, 298, 410** ; Aphids and virus diseases of, in U.S.A. and France, **298, 311, 312** ; varieties of, resistant to *Amphorophora rubi*, **298**.  
 Raspberry Cane-spot (see *Elsinoe veneta*).  
*reaumurana*, *Cydia splendana*.  
*recta*, *Thosea*.  
*rectangulata*, *Chloroclystis*.  
*recurvalis*, *Hymenia*.  
*Recurvaria milleri*, bionomics of, on *Pinus contorta* in Canada, **59**.  
 Red Arrow, **125**.  
 Red-legged Earth Mite (see *Halotydeus destructor*).  
*Reduvius*, predacious on *Bupalus piniarius* in Germany, **74**.  
*religiosa*, *Mantis*.  
*Remigia frugalis* (see *Mocis*).  
*renardii*, *Zelus*.  
*repanda*, *Coccinella* ; *Mocis*.  
*replicata*, *Aonidiella*.  
 Resin, in sprays, **89, 188, 245**.  
 Resin Residue, in bait for moths, **403**.  
*Reticulitermes flavipes*, in building timbers in Ontario, **9**.  
*reversa*, *Sarcophaga*.  
 Reviews :—Bei-Bienko (G. Ya.), Pests of agricultural Plants of the Province of Molotov, **41** ; Bei-Bienko (G. Ya.) & others, Agricultural Entomology, **40** ; Chesnokov (P. G.), Pests of Field and Vegetable Crops, **41** ; Chiesa Molinari (O.), Agricultural Entomology, **170** ; Chugunin (Ya. V.) & Yuganova (O. N.), A Guide to the Control of pests and Diseases of the Orchard, **41** ; Chugunin (Ya. V.) & Yuganova (O. N.), Phenological Calendar for the Protection of Orchards from Pests and Diseases, **313** ; Efimov (A. L.), A reference Book on the Use of Poisons for the Control of Pests and Diseases of agricultural Plants, **42** ; Faes (H.), Staehelin (M.) & Bovey (P.), La défense des plantes cultivées, **224** ; Gahan (C. J.), Furniture Beetles, **305** ; Ghosh (C. C.), Insect Pests of Burma, **227** ; Gram (E.) & Bovien (P.), The Diseases and Pests of Root Crops, 2nd edn., **348** ; Harvey (W. C.) & Hill (H.), Insect Pests, 2nd edn., **308** ; Kotte (W.), Diseases and Pests of Vegetables and their Control, **104** ; Langford (G. S.), Ed. Entoma. A Directory of Insect and Plant Pest Control. 6th edn., **301** ; Mishchenko (A. I.), Insect Pests of Field and Vegetable Crops of the Far East, **41** ; Rekk (G. F.), Mites injurious to cultivated Plants, **42** ; Rostrup (S.), Pests of our Field Crops, **380** ; Ruichin (Yu. V.), Pests of Vegetable Crops and their Control, **40** ; Ruiz Castro (A.), The Insect Fauna of Grape-vines in Spain, **270** ; Schneider-Orelli (O.), A Practical Course on Entomology, **271** ; Stapel (C.) & Bovien (P.), The Diseases and Pests of Field Crops grown for Seed, **348** ; Steinhaus (E. A.), Insect Microbiology, **78** ; Thompson (W. R.) Ed. A Catalogue of the Parasites and Predators of Insect Pests, **200, 376** ; Wellenstein (G.) Ed. The Nun Moth in East Prussia (1933-1937), **233** ; Wigglesworth (V. B.), The Principles of Insect Physiology, **336** ; Wilson (G. F.), The Detection and Control of Garden Pests, **270**.  
*Rhabdoscelus obscurus*, causes of decreased importance of, on sugarcane in Queensland, **29, 367**.  
*Rhagoletis cerasi* (on cherry), introduced Staphylinid reared on, in Italy, **285** ; in Moravia, **101** ; baits for, in Switzerland, **143, 144**.  
*Rhagoletis cingulata*, on cherry and *Prunus emarginata* in Washington, **297, 298** ; sprays against, **297**.  
*Rhagoletis fausta*, on cherry in Washington, **298**.  
*Rhagoletis pomonella* (on apple), in Canada, **98** ; in New York, **257** ; insecticides against, **98, 257**.  
*rhamni*, *Aphis*.  
*Rhamnus*, *Aphis rhamni* overwintering on, **12, 230**.  
*Rhaphidopalpa* (see *Aulacophora*).  
*Rhina barbirostris*, measures against, on coconut in Brazil, **106**.  
*rhinoceros*, *Oryctes*.  
*Rhizobium*, benzene hexachloride protecting cultures of, from mites, **194**.  
*Rhizococcus*, revision of, **376**.

- Rhizoecus albus* (see *Ripersiella*).  
*Rhizoecus amorphophalli* (see *Ripersiella*).  
*Rhizoecus coffeae* (see *Neorhizoecus*).  
*Rhizoecus cynodontis* (see *Morrisoniella*).  
*Rhizoecus decoratus* (see *R. falcifer*).  
*Rhizoecus dianthi* (see *Morrisoniella*).  
*Rhizoecus elongatus* (see *Morrisoniella*).  
*Rhizoecus falcifer*, synonymy of, 376.  
*Rhizoecus terrestris* (see *R. falcifer*).  
*Rhizoglyphus echinopus* (*hyacinthi*), in saffron bulbs in Argentina, 414; on cereals in Moravia, 104; measures against, 104, 414.  
*Rhizopertha dominica* (in stored cereals), in Australia, 192, 302, 414; in Mysore, 15, 16, 17; in U.S.A., 178; biotic potential of, 136; relation of, to temperature and moisture content of wheat, 192, 414; measures and experiments against, 16, 17, 178, 193, 302, 414.  
Rhodesia, Southern, cotton pests in, 339, 340.  
*Rhodnius prolixus*, toxicity of dry film deposits of insecticides to, 292.  
*Rhododendron* (see *Azalea*).  
*Rhoecocoris sulciventris*, insecticides against, on *Citrus* in Queensland, 245.  
*rhois*, *Pulvinaria*.  
*Rhopaea magnicornis* (in Queensland), bionomics of, on ground-nuts, 315; scil treatment against, 247; damaging seedling *Araucaria*, 247.  
*Rhopalosiphum annuae*, on apple in U.S.A., 295; confused with *R. prunifoliae* (q.v.) in U.S.A., 295.  
*Rhopalosiphum conii* (see *Hyadaphis sii*).  
*Rhopalosiphum crataegellum*, in Britain, 295, 296; possibly in U.S.A., 295; bionomics of, 295, 296; sprays against, on apple, 296; confused with *R. prunifoliae* (q.v.), 295.  
*Rhopalosiphum graminum* (see *Toxoptera*).  
*Rhopalosiphum melliferum* (see *Hyadaphis sii*).  
*Rhopalosiphum prunifoliae* (*padi*, auct.), bionomics of, in Britain, 295, 296; food-plants and distribution of, 295; other Aphids confused with, 295; observations on Aphids recorded as, in U.S.A., 83, 175, 268.  
*Rhopalosiphum pseudobrassicae* (in U.S.A.), virus transmitted to celery by, 172; unable to survive on celery, 172; tests of sulphur dust against, on crucifers, 182.  
*Rhopalosiphum rufomaculatum*, tests of insecticides against, on chrysanthemum in Ontario, 184.  
*Rhopobota naevana*, bionomics of, on apple, etc., in Italy, 281, 282; on (1455)  
cranberry in Washington, 298; measures against, 281, 298.  
Rhothane, 404.  
*Rhus diversiloba*, Coccid on, in California, 322.  
*Rhynchites aeneovirens*, on strawberry in Moravia, 101.  
*Rhynchites bacchus*, bionomics and control of, on apple in France, 138.  
*Rhyncophorus palmarum*, measure against, on coconut in Brazil, 106.  
*ribesii*, *Nematus* (*Pteronius*); *Syrphus*.  
*ribis*, *Eriophyes*.  
Rice, pests of, in Argentina, 65; pests of, in Ceylon, 14, 15; pests of, in Fiji, 43; Diptera in field and seedbeds of, in Portugal, 353; *Lissorhoptrus simplex* on, in U.S.A., 173; effects of insecticide treatments on, 115, 353.  
Rice (Stored), pests in, and their control, 15, 16, 43, 69, 427; unsuitable for *Calandra granaria*, 386; (husks), experiments with, against stored-product pests, 16, 17.  
Rice, Wild (see *Zizania aquatica*).  
Rice Weevil (see *Calandra oryzae*).  
*Ricinus* (see *Castor*).  
*rileyi*, *Pyroderces*.  
*Ripersiella*, revision of, 376.  
*Ripersiella alba*, systematic position of, 376.  
*Ripersiella amorphophalli*, systematic position of, 376.  
*Ripersiella ornata*, sp. n., on coffee and cacao in Trinidad, 376.  
*riverae*, *Apanteles*.  
*Robinia*, *Etiella zinckenella* on, in France, 270.  
*roborator*, *Ephialtes* (*Pimpla*).  
*robusta*, *Dexicrates*.  
*Rodolia cardinalis* (predacious on *Icerya purchasi*), utilisation of, in Argentina, 65; in Barbados, 23; establishment of, in Chile, 354.  
Rogas, parasite of *Earias* spp. in Somalia, 226.  
Rooks, damaging grass when predacious on *Anomala horticola* in Britain, 165.  
*rosae*, *Psila*.  
Rose, *Tetranychus telarius* on, in Britain, 189; *T. telarius* on, in Ontario, 185; *Myzus persicae* on, in Switzerland, 381; pests on, in U.S.A., 180, 230; azobenzene not injuring, 189.  
Rose Chafer (see *Macrodactylus subspinosus*).  
*rosea*, *Monolepta* (see *M. australis*).  
*roseus*, *Anuraphis*.  
Rotary Hoe, against *Pseudoholophylla furfuracea*, 29.



Rotenone, against Aphids, **113, 166, 200, 254, 255, 256, 259**; unsatisfactory against *Brevicoryne brassicae*, **263, 299**; against *Blissus* spp., **364, 394, 395**; against *Philaenus leucophthalmus*, **199, 393**; against other Hemiptera, **84, 262, 292**; against Coleoptera, **84, 140, 143, 166, 211, 230, 262, 292, 337, 394**; against Diptera, **113, 297**; against Lepidoptera, **12, 67, 166, 239, 242, 279, 289, 298, 318, 394**; against sawflies, **166**; against thrips, **112, 113**; toxicity to Arthropods of dry film deposits of, **292**; in aerosol, **255, 256**; use of smokes with vaporised, **389**; in dusts, **12, 84, 140, 143, 199, 200, 211, 230, 242, 254, 262, 263, 279, 299, 318, 337, 364, 393, 394, 395**; oil-impregnated dusts of, **254, 393**; in sprays, **12, 67, 112, 113, 166, 199, 259, 262, 298**; formulae containing, **113, 140, 199, 211, 230, 242, 254, 255, 262, 263, 279, 318, 337, 393, 394, 395**; and DDT, **113, 318**; and nicotine, **254, 299, 318**; and oil emulsion, **67, 113**; and mutual solvents in vaporised oil, **113**; and pyrethrum, **143, 262**; and sulphur, **262**; and thiocyanate, **254**; and Velsicol 60 in dust, **254**; other insecticides compared with, **166, 298, 395**.

*rozsyali*, *Phygadeuon*.  
*rubens*, *Ceroplastes*.  
*rubi*, *Amphorophora*; *Byturus*; *Lasiop-tera*.  
*Rubia*, alizarin (q.v.) obtained from, **375**.  
*rubicola*, *Agrilus*.  
*rubigalis*, *Phlyctaenia*.  
*rubrocinctus*, *Selenothrips* (*Heliothrips*).  
*rudis*, *Pollenia*.  
*rufa*, *Formica*; *Solenopsis geminata*.  
*rufata*, *Apechthis* (*Pimpla*).  
*ruficollis*, *Agrilus*; *Dysdercus*.  
*ruficornis*, *Andrector* (*Ceratomya*); *Scolia*.  
*ruficoxis*, *Gabunia*.  
*rufipennis*, *Belonuchus*.  
*rufipes*, *Hylastes* (*Hylurgopinus*); *Necrobia*.  
*rufomaculatum*, *Rhopalosiphum*.  
*rufo-pratensis*, *Formica rufa*.  
*ruforivulata*, *Tomaspis liturata*.  
*rufovillosum*, *Xestobium*.  
*rugicollis*, *Minthea*; *Plesiocoris*.  
*rugulosus*, *Scolytus*.  
Rumania, miscellaneous pests in, **148, 286**; natural enemies of *Aphis maidis* in, **148**.  
*Rumex*, *Typophorus viridicyaneus* on, in Kansas, **391**; identity of black Aphids on species of, **39, 164**.

*Rumex acetosa*, *Otiorrhynchus ligustici* on, in France, **137**.  
*Rumex acetosella*, *Aphis rhamni* on, in Maine, **230**.  
*rumicis*, auct., *Aphis* (see *A. fabae*).  
Russian Thistle (see *Salsola*).  
Rust-red Grain Beetle (see *Laemophloeus ferrugineus*).  
*rustica*, *Cantharis*; *Dexia*; *Tachina*.  
Rutherglen Bug (see *Nysius vinitor*).  
*rutilla*, *Carcelia*.  
Ryanex (in dusts or sprays), ineffective against cabbage caterpillars, **253**; against *Cydia molesta*, **199, 258**; effect of, on *Macrocetrus ancylivorus*, **258**; against *Popillia japonica*, **337**.  
Rye, *Rhizoglyphus echinopus* on, in Moravia, **104**; Aphid killed by selenium taken up by, **175**.  
Rye (Stored), suitability of, for *Calandra granaria*, **386, 387**.  
Rye-grass (see *Lolium*).  
Rye Grass, Giant Wild (see *Elymus condensatus*).

## S.

Sabadilla Dusts, against cabbage caterpillars, **253**; against Hemiptera, **44, 48, 130, 141, 180, 181, 266, 364, 394, 395**; in barriers against *Blissus leucophterus*, **127, 128**; unsatisfactory against *Brevicoryne brassicae* and *Ceuthorrhynchus assimilis*, **299**; and DDT, **141**; lime in dust mixtures containing, **48, 127, 266**; and exhausted pyrethrum, **253**; and sulphur, **141**; survey of literature on, **428**.  
*saccharalis*, *Diatraea*.  
*sacchari*, *Aphis*.  
*saccharicida*, *Perkinsiella*.  
*saccharina*, *Lepisma*; *Tomaspis*.  
*sacchariphagus*, *Proceras*.  
*sacharovi*, *Acridomyia*.  
Saffron (see *Crocus sativus*).  
Sagebrush Swift Lizard (see *Sceloporus graciosus*).  
*Sahlbergella singularis*, on cacao in Gold Coast, **87, 88**; clone of cacao resistant to, **87**; flight range and parasite of, **87**; search for parasites of, **88**; sprays against, **87**.  
*sahlbergellae*, *Euphorus*.  
Sainfoin (see *Onobrychis sativa*).  
St. John's Wort (see *Hypericum perforatum*).  
St. Kitts, *Contarinia sorghicola* in, **130**.  
St. Lucia, miscellaneous pests in, **92, 93**.  
*Saissetia coffeae* (*hemisphaerica*), on avocado and tea in Argentina, **65**.

- Saissetia nigra*, on *Annona cherimolia* in Argentina, 65.
- Saissetia oleae*, on fig in Argentina, 65 ; in California, 21, 114, 323 ; in Chile, 21, 353, 354 ; in New South Wales, 162 ; on *Citrus*, 323, 353 ; on *Lucuma obovata*, 354 ; on olive, 21, 114, 323, 354.
- saliceti*, *Aphis* (*Doralis*).
- salicis*, *Aphrophora* ; *Stilpnotia*.
- Salicylic Acid, action of, in cockroaches, 57.
- salignus*, *Lachnus*.
- Salix* (see Willow).
- Salix purpurea*, 102.
- Salix viminalis*, pests of, in Czechoslovakia, 102.
- salmani*, *Coleophora*.
- Salpingogaster nigra*, predacious on *Tomaspsis flavilatera* in Br. Guiana, 427 ; parasite of, 427.
- Salsola*, *Chlorochroa sayi* on, in Alberta, 269.
- Salsola kali*, *Atanus exitiosus* on, in Argentina, 426.
- Salt, ineffective as soil dressing against *Anomala horticola*, 165 ; in grasshopper bait, 15 ; not increasing attractiveness of flour to *Thermobia domestica*, 50.
- sambuci*, *Aphis*.
- Samoa, Scoliid imported into, against *Oryctes rhinoceros*, 43.
- San José Scale (see *Quadraspidiotus perniciosus*).
- sanborni*, *Macrosiphum* (*Macrosiphoniella*).
- sanctae-helenae*, *Heteronychus*.
- Sand, as barrier against *Capnodis*, 215 ; uses of, against pests of stored grain and pulses, 16.
- sanguinea*, *Cycloneda*.
- sanguineus*, *Helopeltis*.
- Sanninoidea* (see *Aegeria*).
- Saponin, in bait for moths, 402 ; effect of, on termites, 375.
- saratogensis*, *Aphrophora*.
- Sarcophaga*, list of species of, parasitising *Melanoplus m. mexicanus* in Br. Columbia, 60 ; parasite of, in Fiji, 43 ; cuticle structure preventing action of inert dusts on, 203.
- Sarcophaga aculeata*, 60.
- Sarcophaga coloradensis*, 60.
- Sarcophaga falciformis*, 60.
- Sarcophaga filipjevi*, parasite of *Gastromargus musicus* in Queensland, 29.
- Sarcophaga hunteri*, 60.
- Sarcophaga kellyi*, 60.
- Sarcophaga opifera*, 60.
- Sarcophaga rapax*, 60.
- Sarcophaga reversa*, 60.
- Sarcophaga sinuata*, 60.
- Sarcophaga tuberosa* var. *exuberans*, 60.
- Sarcophaga tuberosa* var. *harpax*, 60.
- Sarcophaga tuberosa* var. *sarracenioides*, 60.
- Sarcophila latifrons*, parasite of *Capnodis* in Palestine, 216.
- Sarothamnus*, *Etella zinckenella* on, in France, 270.
- sarracenioides*, *Sarcophaga tuberosa*.
- Saskatchewan, *Cephus cinctus* on cereals in, 97, 338, 365 ; Lepidoptera on flax in, 13, 97 ; *Lygus* spp. on lucerne in, 185 ; miscellaneous pests in, 99.
- Sassafras Oil (see Oils, Essential).
- satyriniformis*, *Melittia*.
- sauCIA*, *Peridroma* (*Agrotis*).
- Sausage Skins, *Dermestes peruvianus* infesting, in Chile, 354.
- Sawdust, in baits, 2, 371 ; suggested for protecting bulk stored grain from insects, 193.
- Sawfly, Apple (see *Hoplocampa testudinea*).
- Sawfly, Black-headed Fir (see *Neodiprion abietis*).
- Sawfly, Spruce (see *Gilpinia hercyniae*).
- Sawfly, Wheat-stem (see *Cephus cinctus*).
- sayi*, *Chlorochroa*.
- Sbeilla furax*, parasite of Coleoptera in stored bamboo in India, 90.
- scabrata*, *Micrapate* (*Bostrychulus*).
- scalaris*, *Calligrapha*.
- Scale, California or Citrus Red (see *Aonidiella aurantii*).
- Scale, Citricola (see *Coccus pseudo-magnoliarum*).
- Scale, European Fruit (see *Quadraspidiotus ostreaeformis*).
- Scale, Oyster-shell (see *Lepidosaphes ulmi*).
- Scale, San José (see *Quadraspidiotus perniciosus*).
- Scale, Scurfy (see *Chionaspis furfura*).
- Scale Insects, natural enemies of, 19, 21, 126, 127, 149, 199, 354, 411 ; ants associated with, 127, 316, 411 ; relation of, to virus disease of cacao, 88, 89 ; honey-dew of, as food for *Macrocentrus homonae*, 2 ; classification and new species of, 149, 284, 285, 321, 322, 376.
- Scapteriscus borelli*, fungus infesting, in Argentina, 18.
- Scelio bipartitus*, parasite of *Gastromargus musicus* in Queensland, 29, 245.
- Scelio chortoiectes*, parasite of *Austroicetes cruciata* in S. Australia, 157 ; bionomics of, 157, 158.
- Sceloporus graciosus*, insects destroyed by, in Utah, 400.
- Schedius* (see *Ooencytrus*).
- Schistocerca*, attempted utilisation of *Coccobacillus acridiorum* against, 51.

- Schistocerca cancellata*, Pentatomid predacious on, in Chile, 7.
- Schistocerca gregaria*, in N. Africa, 36, 153; in W. Africa, 28, 90; in Eritrea, 307; in India, 198, 373; in Spain, 153; in Tanganyika, 306; migrations of, 36, 153; phases and phase characters of, 153, 198; abnormal oviposition by, 307; crops attacked by, 90; baits for, 36, 306; other measures against, 307, 373.
- Schistocerca paranensis*, in Argentina, 18, 170; measures against, in Brazil, 170; migrations of, 170; fungus infesting, 18.
- Schizoneura* (see *Eriosoma*).
- schoenei*, *Tetranychus*.
- schonlandi*, *Lygus* (see *L. simonyi*).
- schwartzi*, *Anuraphis*.
- Sciara* spp., bionomics and control of, on mushrooms in Moravia, 103.
- Scirtothrips citri*, sprays against, on *Citrus* in California, 140, 141.
- Scirtothrips longipennis*, on greenhouse palms in Moravia, 102.
- Scirtothrips signipennis*, measures against, on banana in Queensland, 245.
- scitula*, *Aegeria* (*Synanthedon*).
- Scolia ruficornis*, imported into Samoa against *Oryctes rhinoceros*, 43.
- Scolytus*, on fruit trees in Brazil, 170.
- Scolytus multistriatus*, surveys of distribution of *Ceratostomella ulmi* and, in elms in Connecticut, 356.
- Scolytus rugulosus*, on fruit trees in Argentina, 170; inconclusive test of DDT against, on almond in California, 111.
- Scots Pine (see *Pinus sylvestris*).
- scrophulariae*, *Anthrenus*.
- scrupulosa*, *Teleonemia*.
- Scurfy Scale (see *Chionaspis furfura*).
- scutata*, *Orphanina*.
- scutellatus*, *Goniapterus*.
- scutigera*, *Platyedra* (*Pectinophora*).
- Scutigerella immaculata*, in Spain, 148.
- Scymnus*, predacious on Aleurodids in Punjab, 187.
- Scymnus moreletii*, predacious on *Anychus latus* in Eritrea, 287.
- Seagulls, destroying noxious insects, 63, 171.
- secalis*, *Apamea* (*Parastichtis*).
- Sechium edule*, *Leptoglossus gonagra* on, in Brazil, 106; *Tenuipalpus californicus* on, in Queensland, 368.
- sedecimguttata*, *Halyzia*.
- segetum*, *Agrotis* (*Euxoa*).
- segregata*, auct., *Parasetigena* (see *Phorocera silvestris*).
- Seiulus pomi*, new mite predacious on, on apple in Nova Scotia, 411.
- Seius*, predacious on *Paratetranychus pilosus* in New York, 132.
- selecta*, *Ptychomyia*.
- selenana*, *Ancylys*.
- Selenaspidus articulatus*, possible vector of virus disease of cacao in W. Indies, 89.
- Selenium, Aphids killed by, introduced into cereals, 175.
- Selenothrips rubrocinctus*, on cacao in Brazil, 333; on pulses in Peru, 76; introduced parasite and control of, on cacao in Trinidad, 88.
- semipunctata*, *Phoracantha*.
- Senecia jacobaea*, predators preventing establishment of *Tyria jacobaeae* against, in Australia, 220.
- septemfasciata*, *Nomadacris*.
- septempunctata*, *Coccinella*.
- Septoria rubi*, sprays against, infesting raspberry in New Zealand, 61.
- seriatus*, *Psallus*.
- Serica brunnea*, life-cycle and control of, damaging forest seedlings in Britain, 309.
- sericata*, *Lucilia*.
- sericeiventris*, *Tetramorium*.
- sericeus*, *Metamasius*.
- serius*, *Eretmocerus*.
- serpentina*, *Anastrepha*.
- Serratia marcescens*, infecting *Gnorimoschema operculella* in California, 129.
- serricornis*, *Lasioderma*.
- servus*, *Euschistus*.
- Sesamia vutiera*, on sugar-cane and maize in Mauritius, 1.
- Sesamum orientale* (*indicum*), not toxic to *Atta* or its nest fungus, 76.
- Sesbania*, *Zygrita diva* on, in Queensland, 272.
- Sesbania cinerescens*, *Terias hecabe* on, in Ceylon, 3.
- Sesia* (see *Aegeria*).
- Setaria*, mites on, in St. Lucia, 93.
- setarius*, *Cryptobathys*.
- sexdentatus*, *Ips*.
- sexmaculata*, *Chilomenes*.
- sexpunctatus*, *Andrector*.
- sexta*, *Protoparce*.
- SH20, 110, 111, 112, 113.
- Shallot (Stored), new Aphid on, in Britain, 205, 206.
- Shallot Aphis (see *Myzus ascalonicus*).
- Shell Solvent X6, 221.
- Shellac, protection of *Cornus* with, against *Aegeria scitula*, 360.
- Sialia currucoides*, destroying insects in Utah, 400.
- Siam (see Thailand).
- Sicily, cotton pests in, 419, 420; Cecidomyiid on olive in, 286.
- Sida* spp., vector of chlorosis of, in Brazil, 419, 420.



- side, *Spilochalcis*.  
 Sierra Leone, fruit-piercing moths in, 28 ; *Schistocerca gregaria* in, 28.  
*sierricola*, *Bixadus*.  
*sigillatus*, *Gryllodes*.  
*signata*, *Hexamera*.  
*signatus*, *Anthonomus*.  
*signipennis*, *Scirtothrips*.  
*Signiphora merceti*, parasite of *Cocco-mytilus lantanae* in Argentina, 66.  
*Signiphora xanthographa*, parasite of *Aleurothrixus howardi* in Argentina, 66.  
*sii*, *Hyadaphis*.  
*silhetana*, *Terias* (*Eurema*) *blanda*.  
 Silica, tests of dusts containing, against pests of stored products, 23, 289 ; insecticide dust carriers containing, 310, 392.  
 Silkworm (see *Bombyx mori*).  
*Silpha opaca*, bionomics and control of, in Switzerland, 146.  
*Silpha undata*, bionomics and control of, in Switzerland, 146.  
 Silver-fir Shoot Tortricid (see *Tortrix murinana*).  
 Silverfish (see *Lepisma saccharina*).  
*silvestrii*, *Colpoclypeus*.  
*silvestris*, *Phorocera*.  
*Simaethis pariana* (see *Anthophila*).  
*similalis*, *Loxostege*.  
*similis*, *Epilachna* ; *Epitragus* ; *Perilampus*.  
*simonyi*, *Lygus*.  
*simplex*, *Anabrus* ; *Caedicia* ; *Lissorhoptrus*.  
*simplicia*, *Pundaluoya* (see *Perigrinus maidis*).  
*Sinea undulata*, predacious habits of, in Arizona, 396.  
*singularis*, *Otiorrhynchus* ; *Sahlbergella*.  
*sinuata*, *Sarcophaga*.  
*Siphoninus phillyreae*, parasite of, on *Crataegus* in Morocco, 427.  
 Sitka Spruce (see *Picea sitchensis*).  
*Sitodiplosis mosellana*, on wheat in Br. Columbia, 34.  
*Sitona*, dust against, on broad beans in Britain, 310.  
*Sitona lineatus*, on peas in Moravia, 101 ; larva of, 272.  
*Sitona tibialis*, measures against, on *Caragana* in Saskatchewan, 99.  
*Sitophilus* (see *Calandra*).  
*Sitotroga cerealella*, measures against, in stored cereals in Mysore, 15, 16, 17 ; *Trichogramma* spp. reared on, 152.  
*smithi*, *Clemora* (*Lachnosterna*).  
 Smokes, use of, with vaporised rotenone or naphthalene, 389.  
*Smynthurus*, on beet in Switzerland, 147.  
 Snails, *Bufo marinus* destroying, in Solomon Is., 43.  
 Soap, spraying with, 355 ; as an emulsifier, 70, 92, 98, 191, 309 ; other uses of, in mixed sprays, 64, 69, 94, 95, 98, 108, 112, 219, 221, 263, 274, 276, 281, 287, 309, 355, 373, 386, 411 ; types of, 80, 94, 98, 125, 191, 274, 276, 281, 309, 373, 386 ; formulae containing, 64, 92, 108, 112, 125, 191, 219, 274, 276, 281, 309, 373, 386 ; *Tribolium* infesting maize meal in powdered, 410.  
 Soaxit, 221.  
*sobrinus*, *Geocoris*.  
 Sod Webworms (see *Crambus*).  
 Soda, Caustic (see Sodium Hydroxide).  
 Sodium Alkyl Sulphates, disadvantage of, as emulsifiers in DDT concentrates, 221. (See Ester Salts, Sodium Lauryl and Oleyl Sulphates, Sulphonated Lorols and Tergitol 7.)  
 Sodium Alkylaryl Sulphonates, disadvantage of, as emulsifiers in DDT concentrates, 221.  
 Sodium Arsenate, action of, in cockroaches, 116, 117.  
 Sodium Arsenite, in baits, 137, 163, 216, 217, 306, 347, 371 ; in mopping mixture against *Dysdercus*, 340 ; spraying with, against *Epilachna* on cereals, 378 ; soil treatment with, against termites, 399 ; action of, in cockroaches, 116, 117 ; effect of sublethal doses of, on bees, 75 ; and injury to plants, 378, 399.  
 Sodium Benzoate, in bait for moths, 408.  
 Sodium Carbonate, and soap, spraying with, against *Ceroplastes rubens*, 221.  
 Sodium Cyanide, and sulphuric acid, for generating hydrocyanic acid gas (*q.v.*), 290, 325, 326.  
 Sodium Dinitro Compounds, 33, 228, 251.  
 Sodium Fluoaluminate (see Cryolite).  
 Sodium Fluoride, in baits, 328, 347 ; in bait-spray for *Psila rosae*, 25, 26.  
 Sodium Fluosilicate, in baits, 15, 36, 146, 347 ; dusting with, 15, 154, 297, 348 ; in mopping mixture against *Dysdercus*, 340 ; spraying with, 197, 265, 378 ; treatment of stored products with, against pests, 17, 35, 289 ; and injury to plants, 15, 154.  
 Sodium Hexametaphosphate, as a stabiliser for oil emulsions, 246.  
 Sodium Hydroxide (Caustic Soda), in spray mixture against *Rhœocoris sulciventris*, 245 ; effect of, on anabasine-sulphate solution, 278 ; in nicotine dust, 299 ; fruit-fly baits prepared with, 144 ; *Hylotropes* surviving in deciduous wood treated with, 351.  
 Sodium Hypochlorite, use of, in rearing *Macrocentrus ancylivorus*, 174.

- Sodium Lauryl Sulphate, as emulsifier or wetting agent in sprays, **33, 48, 131, 177, 182, 259, 406.**
- Sodium Nitrate, not impairing efficiency of lead arsenate against *Odontria zealandica*, **14.**
- Sodium Oleyl Sulphate, as wetting agent or emulsifier in sprays, **112, 113.**
- Sodium Selenate (see Selenium).
- Sodium Silicate, ineffective against *Paratetranychus pilosus*, **103.**
- Sodium  $\beta$ -Sulphonates, increasing injury to apple by lime-sulphur, **95.**
- Soil, effects of type of, on insect pests, **56, 134, 173, 174, 367.**
- solani*, *Gargaphia*; *Liriomyza* (*Phytomyza*); *Macrosiphum* (*Myzus*); *Sciara* (see *S. fenestralis*).
- solanifolii*, *Macrosiphum*.
- Solanum carolinense*, *Gargaphia solani* on, in Maryland, **405.**
- Solanum demissum*, *Gnorimoschema operculella* developing in tubers of, **289.**
- Solanum melongena* (see Egg-plant).
- Solanum muricatum*, Tettigoniid damaging, in Eritrea, **308.**
- Solanum nigrum*, *Aphis fabae* on, **39.**
- Solanum polyadenium*, little attacked by potato Aphids in New Brunswick, **97.**
- Solanum rostratum*, relation of *Epitrix tuberis* to, in Nebraska, **335.**
- Solanum triflorum*, relation of *Epitrix tuberis* to, in Nebraska, **335.**
- Solanum tuberosum* (see Potato).
- Solar Heat, use of, against pests, **16, 226.**
- Soldier Ant (see *Myrmecia gulosa*).
- Solenopsis geminata*, thallium sulphate ineffective in baits against, in Mauritius, **2.**
- Solenopsis geminata rufa*, plants attacked by, in Hawaii, **67.**
- Solenotus*, parasite of Agromyzids in Italy, **378.**
- Solomon Is., *Aonidiella eremocitri* on coconut in, **323**; establishment and food of *Bufo marinus* in, **43.**
- solstitiale*, *Amphimallon* (*Amphimallus*).
- Somalia, miscellaneous pests in, **226, 227, 377**; beneficial insects in, **226, 227.**
- somalica*, *Dimmockia*.
- sonchi*, *Macrosiphum*.
- sonoraensis*, *Geocoris*.
- Sooty Mould, associate<sup>1</sup> with Aleurodids, **186.**
- sophorae*, *Brassolis*.
- Sorbitan Monolaurate, polyoxyalkylene derivative of, as an emulsifier, **129, 403.**
- Sorbus* spp., relation of *Argyresthia conjugella* to, **146**; *Rhopalosiphum crataegellum* on, **295.**
- sordidus*, *Aphanus*; *Cosmopolites*.
- sorghicola*, *Contarinia*.
- Sorghum, *Neomaskellia bergii* on, in Fr. W. Africa, **428**; pests of, in Australia, **190, 191, 244, 245**; *Chlorochroa sayi* on, in California, **396, 397**; pests of, in India, **4, 15**; *Atherigona quadripunctata* on, in Italy, **378**; *Aphis maidis* and virus disease of, in Rumania, **148**; infestation by *Lygus* of cotton isolated from, in Uganda, **340**; little damaged by *Diatraea grandiosella*, **231.** (See Broom Corn.)
- Sorghum (Stored), pests in, and their control, **16, 17, 69, 178.**
- Sorghum Midge (see *Contarinia sorghicola*).
- Sorrel (see *Rumex acetosa*).
- South-western Corn Borer (see *Diatraea grandiosella*).
- Soy Bean, pests of, in Australia, **243, 272**; *Etiella zinckenella* on, in France, **270, 279, 280.**
- Soy-bean Flour, as an adhesive for sprays, **82, 318, 319.**
- Soybean Oil, as conditioning agent for dusts, **199**; in sprays, **81, 82, 253, 318.**
- Spain, pests of fruit trees in, **96, 149, 150, 168**; *Leptinotarsa decemlineata* in, **148, 153, 154**; locusts in, **153**; miscellaneous pests in, **148, 149, 152, 155**; pests of olive in, **150, 155**; vine pests in, **149, 270**; beneficial insects and biological control in, **152, 155.**
- Spalangia*, key to, of Ethiopian Region, **227.**
- sparsa*, *Aleochara*.
- Spartium*, *Etiella zinckenella* on, in France, **270.**
- Spathium*, parasite of Coleoptera in stored bamboo in India, **90.**
- Spatulifimbria castaneiceps*, parasites of, on tea in Ceylon, **3.**
- Speedsprayer, **81.**
- spencei*, *Haplonyx*.
- Spergon, **36, 359.**
- Spermophagus subfasciatus*, in stored beans in Chile, **8.**
- sphenarioides*, *Colemania*.
- Spiders, destroying *Tomaspis*, **86**; Tettigoniids feeding on, **308.**
- Spilochalcis magistretti*, parasite of *Oiketicus geyeri* in Argentina, **66.**
- Spilochalcis side*, parasite of *Bucculatrix thurberiella* in U.S.A., **397.**
- Spilonota ocellana*, DDT ineffective against, in Canada, **98**; dormant spray against, on apple in New York, **228.**
- Spilosoma investigatorum* (see *Diacrisia*).
- Spinach, cricket damaging, in green-houses in Russia, **347**; *Silpha opaca* on, in Switzerland, **146.**

- Spinaria*, parasite of *Thosea* in Ceylon, **3**.  
*spiniferus*, *Aleurocanthus*.  
*Spiraea* *Aphis* (see *Aphis spiraeicola*).  
*spiraeicola*, *Aphis*.  
*splendana*, *Cydia* (*Laspeyresia*).  
*splendidella*, *Dioryctria*.  
*Spodoptera mauritia*, on rice in Ceylon and Fiji, **15, 43**; on maize in Mauritius, **1**; measures against, **15**.  
*Spondias cytherea*, *Aonidiella orientalis* on, in Porto Rico, **323**.  
 Sprays, application of, from aircraft, **99, 177, 314, 416, 417**; equipment for applying, **182, 253, 254, 319, 416, 417**; functions of colloids in, **389**; dusts compared with, **231, 391**.  
 Spruce, *Chermes cooleyi* on, in Britain, **308**; pests of, in Canada, **9, 99, 301**; pests of, in Czechoslovakia, **101**; *Lymantria monacha* and *Pristiphora abietina* on, in East Prussia, **233-240, 330, 331**; *Ips sexdentatus* and *Ceratostomella* in, in Turkey, **39, 40**; factors affecting infestation of, by *L. monacha*, **234**; effects of insecticides on, **239, 299**; Coleoptera in timber of, **267, 350**.  
 Spruce, Norway (see *Picea abies*).  
 Spruce, Oriental (see *Picea orientalis*).  
 Spruce, Sitka (see *Picea sitchensis*).  
 Spruce, White (see *Picea glauca*).  
 Spruce Sawfly (see *Gilpinia hercyniae*).  
*spurius*, *Apanteles*.  
*squalidus*, *Baryopadus*.  
*squamulata*, *Glyptoscelis*.  
 Squash, *Diaphania* spp. on, in Brazil, **107**; pests of, in U.S.A., **125, 167, 262, 266, 408**; insecticides causing injury to, **262**.  
 Squash Bug (see *Anasa tristis*).  
*stabilis*, *Orthosia* (*Monima*).  
*stabulans*, *Lydella*.  
*stanleyi*, *Metaphycus*.  
 Starch, content of, in relation to insects in bamboo culms, **90, 91**; depletion of, from wood against *Lyctus*, **247, 305**.  
 Statistical Methods, application of, to insecticide tests, **279**.  
*Stauroderus bicolor* (see *Chorthippus brunneus*).  
 Steam, sterilisation of soil with, against *Liriomyza*, **328**.  
*Steatococcus nudatus*, on lucerne in Queensland, **272**.  
*Stegasta bosquella*, on ground-nuts in Peru, **76**.  
*steinheili*, *Temnochila*.  
*Steirastoma depressum*, bionomics of, on cacao in W. Indies, **89**.  
*Stellaria media*, *Myzus ascalonicus* on, in Britain, **206**.  
*stellata*, *Acantholyda*, *Lyda* (see *A. pinivora*).  
*stellulata*, *Cicadella*.  
*stemmator*, *Xanthopimpla*.  
*stenocari*, *Thersilochus gibbus*.  
*Stenocarus cardui*, new parasite of, in Czechoslovakia, **329**.  
*Stenocarus fuliginosus*, on poppy in Czechoslovakia, **101, 329**; new parasites of, **329**.  
*Stenodiplosis panici*, factors affecting fecundity of, on millet in U.S.S.R., **346**.  
*Stenodontes downesi* (see *Mallodon*).  
*Stenothrips graminum*, on oats in Bohemia, **100**.  
*Stephanoderes hampei*, parasite and control of, on coffee in Brazil, **105**.  
*Sternotomis*, species of, on cacao and coffee in Africa, **36, 37**.  
*Stethorus* (predacious on Tetranychids), in Italy, **287**; in New York, **132**.  
*Stethorus punctillum*, attempted introduction of, into Chile against *Tetranychus telarius*, **8**.  
*sticticalis*, *Loxostege*.  
*sticticraspis*, *Proceras* (*Argyria*).  
*stigma*, *Chilocorus*; *Epidola*.  
*Stigmaeus floridanus*, effect of methyl bromide on, on pineapple in Florida, **56**.  
*stigmatera*, *Agathis* (*Microdus*).  
*stigmaticus*, *Mesochorus* (see *M. pectoralis*).  
*Stilpnotia salicis*, on willow in Nova Scotia, **302**.  
*Strategus* spp., measures against, on coconut in Brazil, **106**.  
 Strawberry, Aphids on, in Britain, **188, 205**; pests of, in Canada, **98**; *Rhynchites aeneovirens* on, in Czechoslovakia, **101**; *Eugaster aereus* on, in Eritrea, **308**; *Otiorrhynchus ligustici* on, in France, **137**; *Lachnosterna* on, in Mexico, **334**; soil treatment protecting, from *Odontria* in New Zealand, **14**; *Cisseis chrysopygia* on, in Queensland, **246**; pests of, in U.S.A., **111, 122, 199, 393**; Aphids and virus diseases of, **188, 207**.  
 Strawberry Leafroller (see *Ancyliis comp-tana*).  
 Strawberry Rootworm (see *Paria canella*).  
*striata*, *Anastrepha*.  
*striatum*, *Anobium* (see *A. punctatum*).  
*strigata*, *Liriomyza*.  
*Strigoderma arboricola*, bionomics of, on ground-nuts in Virginia, **250**.  
*Stromatium barbatum*, bionomics and control of, in stored bamboo in India, **90**; timbers damaged by, in Mauritius, **2**.  
*Strumeta* (see *Dacus*).



- Strymon melinus*, on beans in Delaware, 122.
- stuardoi*, *Graphidothrips*.
- Sturmia*, utilisation of, against *Gilpinia hercyniae* in Nova Scotia, 302.
- Sturnus vulgaris*, destroying insects in Germany, 348.
- Stylocryptus*, parasite of *Pristiphora abietina* in Germany, 331.
- Stylocryptus brevis*, 331.
- Stylops*, parasite of *Empoasca lybica* in Sudan, 293.
- Subcoccinella vigintiquatuorpunctata*, predacious on *Aphis gossypii* in Italy and Sicily, 420.
- subcristata*, *Epitrix*.
- subfasciatus*, *Spermophagus* (*Zabrotes*).
- submarginatus*, *Hemiteles*.
- subspinosus*, *Macrodactylus*.
- subterraneus*, *Aphodius*.
- subtilis*, *Lixus*.
- Subulina*, *Bufo marinus* destroying, in Br. Solomon Is., 43.
- Sudan, Anglo-Egyptian, new Coccid on grasses in, 68 ; pests of cotton in, 292, 293, 340 ; Jassids on other plants in, 293.
- Sudan Bollworm (see *Diparopsis castanea*).
- Sugar, in baits, 50, 143, 144, 146, 371, 402, 403, 408 ; in mopping mixtures against *Dysdercus*, 340 ; in sprays against thrips, 65, 112, 370 ; used for feeding insects, 2, 169, 294, 351, 385.
- Sugar-cane, pests of, in Argentina, 65 ; pests of, in Australia, 28, 29, 190, 245, 366, 367, 368 ; pests of, in Brazil, 85, 167, 169 ; *Perkinsiella vitiensis* on, in Fiji, 43 ; *Tomaspis flavilatera* on, in Br. Guiana, 427 ; pests of, in Mauritius, 1 ; *Diatraea saccharalis* on, in Mexico, 387, 388 ; pests of, in Mysore, 3, 96 ; pests of, in W. Indies, 22, 85, 141 ; insects and virus diseases of, 167, 368 ; varieties of, in relation to pests, 1, 169.
- Sugar-cane Moth Borers (see *Diatraea saccharalis* and *Proceras* spp.).
- Sugar-cane Top-rot (see *Phytophthora rubrilineans*).
- sulcatus*, *Platypus*.
- sulciventris*, *Rhoecocoris*.
- Sulphite Lye (Lignin Pitch), as emulsifier, 33, 94 ; other uses of, in sprays, 64, 95, 183.
- Sulphonated Lorols [sulphated alcohols or salts of them], as spray spreaders, 95 ; in media for testing insecticides, 166, 167 ; toxicity of, to *Macrosiphum sanborni*, 167.
- Sulphur, factors affecting action of, on Aphids, 181, 182 ; against other Hemiptera, 52, 80, 114 ; against *Cydia nigricana*, 12 ; as repellent against *Dacus*, 155 ; against mites, 65, 103, 274, 287, 362, 368, 370 ; treatment of grain and pulses with, against Coleoptera, 16, 35 ; dusting with, 12, 52, 65, 80, 114, 155, 181, 182, 274, 287, 362 ; in mixed dusts, 35, 46, 47, 52, 84, 112, 114, 122, 141, 176, 181, 229, 247, 250, 262, 275, 355, 368, 394, 397, 398 ; fused dusts of DDT in, 397 ; spraying with, 65, 103, 274, 370 ; in mixed sprays, 95, 96, 141, 275, 319, 368, 401 ; apple injured by, with soap, 95 ; and arsenic, fumigation with mixture of, against ants, 413 ; formulae containing, 35, 46, 47, 52, 84, 95, 96, 112, 114, 122, 141, 176, 250, 262, 274, 275, 368, 394, 397, 398, 401, 413.
- Sulphur Dioxide, studies relating to fumigation with, against pests in stored cacao, 38 ; effect on insects of, generated from lime-sulphur, 58.
- sulphurea*, *Frankliniella*.
- Sulphuric Acid, fruit-fly baits prepared with, 144 ; *Gnorimoschema operculella* not affected by treatment of potatoes with, 289 ; and sodium cyanide, for generating hydrocyanic acid gas (*q.v.*), 290, 325.
- Sunflower, pests of, in Argentina, 66 ; *Mamestra brassicae* on, in Bulgaria, 385 ; *Euaresta aequalis* not feeding on, 220.
- Sunspots, outbreaks of insects not correlated with, 73, 135.
- superbus*, *Adelphocoris*.
- Superphosphate, benzene hexachloride and DDT distributed in, 158, 218 ; not affecting lead arsenate in soil, 14.
- superstitiosus*, *Dysdercus*.
- surinamensis*, *Oryzaephilus*.
- suturalis*, *Brumus* ; *Lochmaea*.
- Swammerdamia pyrella*, bionomics of, on apple in Italy, 282.
- Swede, pests of, in Britain, 208, 209, 303, 304 ; pests of, in Denmark, 348.
- Swede Midge (see *Contarinia nasturtii*).
- Sweden, Coleoptera damaging building timber in, 294.
- Sweet Clover (see *Melilotus*).
- Sweet Potato, *Cocytius cluentius* on, in Argentina, 66 ; *Bedellia orchilella* on, in Hawaii, 67 ; *Temnipalpus californicus* on, in Queensland, 368 ; *Empoasca facialis* on, in Sudan, 293 ; *Typophorus viridicyaneus* on, in U.S.A., 23, 391 ; effect of defoliation on, 22 ; insecticides and injury to, 67, 93.
- Sweet Potato Leaf Beetle (see *Typophorus viridicyaneus*).

Sweet Potato Leaf Miner (see *Bedellia orchilella*).

*Swietenia mahagoni*, factors determining resistance of, to termites, 375.

Swift, Sagebrush (see *Sceloporus graciosus*).

Switzerland, pests of beans in, 147, 148 ; beet pests in, 146, 147, 381 ; *Ceuthorrhynchus* spp. on cabbage in, 384 ; forest pests in, 202 ; *Leptinotarsa decemlineata* in, 143, 146, 288 ; orchard pests in, 69, 70, 143, 144, 145, 146, 201, 381, 383 ; Aphids and virus disease of potato in, 381 ; pests of stored grain in, 383, 384 ; vine pests in, 144, 145, 147, 198, 322 ; book on pests of cultivated plants in, 224 ; beneficial insects in, 69, 144, 147, 148, 381, 382, 383 ; precautions against introduction of *Quadraspidiotus perniciosus* into, 146, 201.

*Sybra centurio*, on soy beans and possibly ground-nuts in Queensland, 243, 316.

*sycophanta*, *Calosoma*.

*Sylepta derogata* (on cotton), in Somalia, 226 ; measures against, in Sudan, 340.

*Sympiesis*, parasitising *Psara bipunctalis* in Mauritius, 2.

*Synanthedon* (see *Aegeria*).

*Syntomosphyrum indicum*, utilisation of, against fruit-flies in Fiji, 43.

*Syringopais temperatella*, cultural measures against, on wheat in Palestine, 273.

*Syrphophagus aeruginosus*, parasite of *Xanthandrus comtus* in Italy, 282.

*Syrphus ribesii* (predacious on *Aphis fabae*), trapped on bean leaves in Switzerland, 147.

*Syrphus tricinctus*, predacious on *Bupalus piniarius* in Germany, 74.

Syrup, in spray against *Thrips tabaci*, 231.

## T.

*tabaci*, *Bemisia* ; *Thrips*.

*Tachina rustica*, parasite of *Mamestra brassicae* in Bulgaria, 385.

*Tachycines asynamorus*, bionomics and control of, on greenhouse vegetables in U.S.S.R., 346.

*Tachypterellus quadrigibbus magnus*, sprays controlling, on apple in Iowa, 401.

*taeniatulus*, *Pantomorus* (*Atrichonotus*).

*taeniopus*, *Chlorops* (see *C. pumilionis*).

*Taeniothrips atratus*, on phlox in Maine, 23.

*Taeniothrips dianthi*, on carnation in Rumania, 286.

*Taeniothrips inconsequens*, sprays against, on pear in California, 113.

Tahiti, biological control of *Cosmopolites sordidus* in, 43.

Talc, as a carrier for dusts, 7, 12, 44, 53, 64, 67, 81, 119, 120, 159, 175, 180, 199, 231, 247, 252, 253, 289, 298, 301, 359, 366, 391, 392, 394, 404 ; reducing toxicity of cryolite, 359 ; effect of forms of, on efficiency of other insecticides, 199, 392 ; spray formula containing DDT in, 114.

Tall Oil, soap prepared with, as emulsifier, 98.

Tanganyika Territory, *Lygus* on castor in, 213 ; cotton pests in, 292, 340, 341 ; locusts in, 163, 306 ; Scoliid imported into Samoa from, against *Oryctes rhinoceros*, 43.

Tangerine (see Orange, Mandarin or Tangerine).

*Tapinoma*, baits for, in dwellings in New South Wales, 371.

Tar, bamboo bins coated with mixture containing, against *Calandra*, 17.

Tar Distillates, against *Chermes* on fir, 202 ; ineffective against *Psila rosae*, 25 ; as dormant sprays against orchard pests, 70, 138, 150, 201, 283 ; not effective against eggs of *Paratetranychus pilosus*, 103 ; soil treatment with, against *Contarinia pyrivora*, 94 ; as dormant spray against *Tenuipalpus californicus* on vines, 133 ; unsatisfactory against *Diaspidiotus uvae*, 149 ; other winter ovicides compared with, 70, 201 ; types of, 70, 201 ; emulsifiers for, 94, 150 ; formulae for, 70, 94, 133, 150 ; formulae containing, 150 ; and Bordeaux mixture, 70, 138 ; as solvent for DDT, 85 ; and dinitro-cresol, 201 ; and lime-sulphur, 70 ; and petrol, 150.

*Taraxacum officinale*, *Myzus ascalonicus* on, in Britain, 206.

Tarnished Plant Bug (see *Lygus oblineatus*).

*Tarrietia argyrodendron*, pests of, in Queensland, 247.

*Tarrietia argyrodendron* var. *peralata*, depletion of starch from, against *Lyctus* in Queensland, 247.

*tarsatus*, *Macremphytus*.

Tartar Emetic, and sugar or honey, in sprays against thrips, 112, 231, 370 ; fungicides reducing toxicity of bait-sprays containing, to *Dacus cucurbitae*, 67.

Tasmania, pests and virus disease of tomato in, 137.

*Taxodium distichum*, resistance of timber of, to termites, 375.

- Taxus adpressa*, *Aonidiella taxus* on, in Japan, **323**.  
*taxus*, *Aonidiella*.  
 Tea, Coccids on, in Argentina, **65** ; pests of, in Ceylon, **2, 3**.  
 Tea (Stored), Coleoptera imported into Chile in chests of, **355** ; carbon bisulphide not impairing flavour of, **355**.  
 Tea Tortrix (see *Homona coffearia*).  
 Teak, cause of resistance of, to termites, **375**.  
*Technomyrmex detorquens* (*albipes*), measures against, in houses in Australia, **161, 371**.  
 Tectoquinone, rendering teak resistant to termites, **375**.  
*tedella*, *Epiblema*.  
*telarius*, *Tetranychus*.  
*Telenomus*, parasite of *Bupalus piniarius* in Germany, **74**.  
*Telenomus alsophilae*, parasite of *Alsophila pometaria* in Connecticut, **361**.  
*Telenomus ashmeadi* (see *T. mesillae*).  
*Telenomus mesillae*, hosts of, in U.S.A., **396**.  
*Telenomus podisi*, parasite of *Chlorochroa sayi* in California, **397**.  
*Teleonemia scrupulosa* (attacking *Lantana*), utilisation of, in Fiji, **43** ; establishment and spread of, in Queensland, **161, 220, 247** ; failure to establish, in New South Wales and Norfolk I., **220**.  
*tellini*, *Epilachna similis*.  
*Temnochila steinheili*, predacious on *Phoracantha semipunctata* in Argentina, **334**.  
*temperatella*, *Syringopais*.  
 Temperature, relation of locusts to, **343, 344** ; relation of other insects to, **9, 62, 71, 98, 104, 109, 127, 146, 157, 187, 192, 195, 228, 233, 234, 235, 267, 277, 296, 321, 332, 334, 342, 343, 347, 357, 382, 384, 414** ; indices of adaptation of insects to changes in, **342, 343** ; effect of, on action of insecticides, **182, 251**.  
*Tenebrio molitor*, water contents of, in stored grain, **384** ; tests of insecticides on, **117, 292, 425**.  
*Tenebroides mauritanicus*, fumigation against, in imported ground-nuts in Canada, **30** ; DDT against, in stored grain in U.S.A., **178**.  
*tenellus*, *Eutettix*.  
 Tennessee, pests of cereals in, **94, 127, 403** ; *Macropsis* spp. on *Prunus* in, **402**.  
 Tent Caterpillars (see *Malacosoma*).  
*Tenuipalpus*, bionomics and control of, on *Citrus* in Spain, **149**.  
*Tenuipalpus californicus* (in Australia), on *Passiflora edulis*, **246, 368** ; on vines, **132** ; on other plants, **368** ; measures against, **133, 368** ; synonymy of, **132**.  
*Tenuipalpus obovatus*, plants defoliated by, in Ceylon, **3**.  
*Tenuipalpus phoenicis* (see *T. californicus*).  
 Tergitol 7, as an emulsifier, **131**.  
*Terias blanda silhetana*, parasite of, on *Albizzia* and tea in Ceylon, **3**.  
*Terias hecabe*, on *Albizzia* and *Sesbania* in Ceylon, **3**.  
*terminifera*, *Chortoicetes*.  
 Termites, attacking living plants, **22, 340** ; in timber, **2, 314, 399** ; factors rendering timbers resistant to, **375** ; measures and experiments against, **162, 314, 399** ; technique of rearing, **333**.  
 Terpinyl Acetate, in baits for moths, **402, 403**.  
*terrae-reginae*, *Empoasca*.  
*terrestris*, *Rhizococcus* (see *R. falcifer*).  
*testudinea*, *Hoplocampa*.  
*testulalis*, *Maruca*.  
 Tetrachlorbenzene, action of, in cockroaches, **58**.  
 Tetrachlorethane, fumigation with, against *Trialeurodes vaporariorum*, **326** ; resistance of *Encarsia formosa* to, **327**.  
 Tetrachlorethylene, tests of mixtures containing, for fumigating grain sacks against insects, **210, 211**.  
 Tetrachlorhydroquinone, action of, in cockroaches, **58**.  
 Tetrachlorparabenzquinone, not protecting bean seed from *Bruchus oblectus*, **36**.  
*Tetragonia expansa*, thrips on, in Missouri, **56**.  
 Tetrahydronaphthalene (Tetralin), as solvent for DDT, **92, 124** ; retarding penetration of DDT into plants, **124**.  
*Tetramorium caespitum*, destroying *Chloroclystis rectangulata* in Switzerland, **383**.  
*Tetramorium sericeiventris*, destroying *Platyedra gossypiella* in Somalia, **226**.  
 Tetranitrocarbazole, in sprays and dusts against vine moths, **145, 198**.  
*Tetranychus*, on *Albizzia* in Ceylon, **3** ; in New South Wales, **317** ; in U.S.A., **82, 83, 180, 398** ; on apple, **82, 83, 317** ; on cotton, **398** ; azobenzene against, on greenhouse plants, **180** ; DDT ineffective against, **98** ; DDT increasing infestation by, **83, 317, 398**.  
*Tetranychus althaeae* (see *T. telarius*).  
*Tetranychus atlanticus*, DDT ineffective against, on cotton in California, **111**.



- Tetranychus bimaculatus*, effects of insecticides on infestation of almond and apple by, in U.S.A., 111, 320.
- Tetranychus cucurbitae*, bionomics of, in Punjab, 31, 32.
- Tetranychus schoenei*, sprays affecting infestation of apple by, in Virginia, 264.
- Tetranychus telarius* (*urticae*), in Australia, 161, 242, 246, 274, 275, 369; in Britain, 189, 310, 325, 328; in Canada, 185; in Chile, 8; in Czechoslovakia, 100, 101; in Italy and Sicily, 287, 419; in Rumania, 286; in Switzerland, 148; in U.S.A., 132, 258; on beans, 148, 161, 189, 287; on cotton, 419; on cucurbits, 100, 185, 189, 242, 274, 275, 287; on fruit trees, 132, 246, 258, 287, 310, 369; on hops, 101; on tomato, 189, 287, 325, 328; on vines, 189, 286; on other plants, 185, 189, 287; bionomics of, 274, 287, 325; natural enemies and biological control of, 8, 148, 287; measures and experiments against, 185, 189, 274, 275, 287; DDT ineffective against, 69, 161, 242, 310, 328; DDT increasing infestation by, 246, 258, 369.
- Tetrastichus*, hyperparasite of *Limacodids* in Ceylon, 3; parasite of *Lasiophora berlesiana* in Italy, 286; key to species of, in Ethiopian Region, 227.
- Tetrastichus minutus*, parasite of *Pseudococcus juniperi* in Kansas, 411.
- Tetrastichus rapo*, parasite of *Apanteles glomeratus* in Europe, 351, 352.
- tetrio*, *Pseudosphinx*.
- Tettigella* (*Tettigoniella*) *viridis*, bionomics and control of, in France, 225, 226.
- Texas, *Andrector ruficornis* on beans in, 171; cotton pests in, 47, 48, 50, 52, 175, 176, 397, 398; new Tineid on egg-plant in, 300; fruit-tree pests in, 321, 322; *Thrips tabaci* on onion in, 54; pests of pecan in, 54, 179, 265.
- Textiles, insects damaging, 45. (See Nylon.)
- Thailand, *Aonidiella* spp. in, 322, 323.
- Thallium Sulphate, in baits for ants, 2, 371.
- Thamnotettix argentata*, transmitting virus disease of tobacco in Australia, 162.
- Thanatopsycha chilensis*, *Podisus nigrolimbatus* attacking, in Chile, 7.
- Thanite, 53.
- theivora*, *Helopeltis*.
- theobroma*, *Distantiella*.
- theobromae*, *Morrisoniella*.
- Theresia brasiliensis* (parasite of *Diatraea saccharalis*), bionomics and rearing of, in Brazil, 169.
- Thermesia gemmatalis* (see *Anticarsia*).
- Thermobia domestica*, in houses in U.S.A., 49, 178; food preferences of, 49; DDT against, 178.
- Theronia atalantae*, parasite of *Lymantria monacha* in Germany, 237.
- Thersilochus gibbus* subsp. *stenocari*, n., parasite of *Stenocarus* spp. in Czechoslovakia, 329.
- Thiocyanates, as nest treatment and barrier against ants, 53; against Aphids, 254, 278, 299; against other Hemiptera, 51, 199, 262, 392; ineffective against *Epitrix*, 262; against thrips, 364; penetration of insect cuticle by, 278; in dusts, 199, 254, 262, 299; in sprays, 51, 53, 199, 364, 394; and DDT, 364; and rotenone, 254.
- Thiodiphenylamine (see Phenothiazine).
- Thosea* spp., parasites of, on tea in Ceylon, 3.
- Thrips lini*, on flax in Rumania, 286.
- Thrips nigropilosus*, insecticides against, on chrysanthemum in Ontario, 185.
- Thrips tabaci*, in Australia, 137, 242, 243, 274, 370; in Canada, 98; in Hawaii, 402; in Italy and Sicily, 419; in Rumania, 286; in U.S.A., 54, 111, 112, 231, 252; on cotton, 111, 419; on cucurbits, 242, 274; on onion, 54, 98, 112, 231, 243, 370; on other plants, 252, 286, 402; transmitting spotted wilt, 137, 402; insecticides against, 54, 98, 111, 112, 231, 242, 252, 274, 370.
- Thrips, Citrus (see *Scirtothrips citri*).
- Thrips, Onion (see *Thrips tabaci*).
- thurberiella*, *Bucculatrix*.
- Thyanta custator* (in U.S.A.), on cotton, 46; on lucerne, 111; causing catfacing of peaches, 249; dusts against, 46, 111.
- Thyreion gelotopoeon*, on *Cicer arietinum* and sunflower in Argentina, 66.
- Thysanoptera, predacious on mites, 132, 287; relation of, to plant diseases, 65, 87, 114, 137, 402.
- Thysanus dipterophagus*, hyperparasite of *Diatraea saccharalis* in Brazil, 169.
- tibialis*, *Phanerotoma*; *Sitona*.
- Tibraca limbativentris*, on rice in Argentina, 65.
- Tick Beans (see Broad Beans).
- TIFA (see Todd Insecticide Fog Applicator).
- timais*, *Xanthopastis*.
- Timber, Coleoptera in, 2, 18, 247, 267, 294, 305, 308, 332, 350, 354, 355; causes of resistance of deciduous, to

- Hylotrupes*, 350, 351 ; depletion of starch from, against *Lyctus*, 247, 305 ; *Macremphytus tarsatus* burrowing in, 406 ; termites in, 2, 9, 314 ; factors affecting resistance to termites of species of, 375 ; treatment of, for rearing termites, 333 ; treatment of, with preservatives against pests, 305, 399.
- Timothy Grass (see *Phleum pratense*).
- Tinea cloacella*, damaging wine casks and corks in Germany, 71 ; bionomics of, 71, 72.
- Tinea granella*, damaging wine corks in Germany, 71 ; bionomics of, 71, 72.
- Tineola biselliella*, DDT fog against, in wool warehouse in New York, 260 ; damage to nylon by, 45.
- Tinospora*, *Othreis* spp. on, in Gwalior, 375.
- Tiphia parallela*, parasite of *Clemora smithi* in Mauritius, 1.
- Tiphia popillivora*, parasite of *Popillia japonica* in Connecticut, 357.
- Tiphia vernalis*, utilisation of, against *Popillia japonica* in U.S.A., 337, 338, 357.
- Tipula*, DDT against, in turf in Britain, 223.
- Tipula paludosa*, on cabbage in Bohemia, 100 ; bait for, damaging grass and cereals in Scotland, 188.
- tipuliformis*, *Aegeria* (*Sesia*).
- Tiracola plagiata*, bait for, on *Bryonia* and banana in Queensland, 245.
- Toad (see *Bufo*).
- Tobacco, pests of, in Argentina, 65, 66 ; pests of, in Australia, 162, 242 ; *Mamestra brassicae* on, in Bulgaria, 385 ; pests of, in Fiji, 43 ; cutworms on, in Ontario, 97 ; *Limonijs agonus* damaging, in U.S.A., 358 ; insects and virus diseases of, 65, 162, 206 ; leaf areas of, in relation to insecticides, 124.
- Tobacco (as insecticide), in spray against *Phyllocnistis citrella*, 373 ; ineffective as repellent against *Agromyza phaseoli*, 2 ; in mixed dust, 318.
- Tobacco Blue Mould (see *Peronospora tabacina*).
- Tobacco Flea-beetle (see *Epitrix hirtipennis*).
- Todd Insecticide Fog Applicator, 255, 259, 260.
- Toluene, action of, in cockroaches, 57 ; emulsified solution of DDT in, 221.
- tolumnalis*, *Margaronia*.
- Tomaspis flavilatera*, natural enemies of, on sugar-cane in Br. Guiana, 427.
- Tomaspis liturata* var. *ruforivulata*, natural enemies and control of, on sugar-cane and grasses in Brazil, 85, 86.
- Tomaspis saccharina*, on sugar-cane in Trinidad, 85, 141, 427 ; *Metarrhizium anisopliae* infesting, 427 ; dusts against, 141.
- Tomato, *Phydenus muriceus* on, in Argentina, 66 ; pests of, in Australia, 137, 159, 162, 243, 244, 275, 368 ; prohibition of cultivation of, against *Dacus ferrugineus tryoni* in S. Australia, 415 ; pests of, in Britain, 189, 325, 326, 327, 328 ; *Protoparce* on, in Chile, 355 ; *Eugaster loricatus* damaging, in Eritrea, 308 ; pests of, in Hawaii, 66, 67 ; pests of, in Italy, 287, 288 ; *Tetranychus cucurbitae* on, in Punjab, 31 ; *Empoasca lybica* on, in Sudan, 293 ; cricket attacking, in greenhouse in Russia, 347 ; pests of, in U.S.A., 114, 167, 250, 358 ; not attacked by *Atanus exitiosus*, 426 ; effect of Aphid populations on, 399 ; relation of *Epitrix tuberis* to, 44, 335 ; influence of soil minerals on infestation of, by *Trialeurodes vaporariorum*, 173 ; thrips transmitting spotted wilt of, 114, 137 ; purple top virus of potato mechanically transmitted to, 97 ; insecticides and injury to, 67, 93, 114, 189, 262, 326, 358.
- Tomato, Wild (see *Solanum triflorum*).
- Tomato Hornworm (see *Protoparce quinquemaculata*).
- Tortrix argyrospila* (in U.S.A.), DDT against, on apple, 111 ; parasite of, 139.
- Tortrix divulsana*, bionomics and control of, on lucerne in Queensland, 271.
- Tortrix murinana*, factors affecting fluctuations in populations of, on silver fir in Germany and Austria, 72, 73.
- Tortrix postvittana*, on vines and leguminous plants in Victoria, 162 ; parasite and control of, 162.
- Tortrix viridana*, natural enemies of, on oak in Central Europe, 73, 331 ; other trees attacked by, 331.
- Tortrix*, Tea (see *Homona coffearia*).
- Toxoptera aurantii*, DDT against, on *Citrus* in St. Lucia, 92.
- Toxoptera graminum* (on cereals), Coccinellid predacious on, in Argentina, 19 ; in Moravia, 101 ; influence of soil nutrients on, 173 ; effects of temperature on development of, 343.
- Toxylon pomifera* (see *Maclura*).
- Tragocephala*, species of, on cacao and coffee in Africa, 36, 37.
- transversalis*, *Coccinella repanda*.
- Traps, for studying Aphid flight movements, 109, 382 ; mobile types of, for *Colemania sphenarioides*, 15 ; for Coleoptera, 223, 303 ; for *Cydia pomonella*, 407, 408 ; for *Dacus oleae*,

- 150, 151** ; DDT-treated, for *Forficula auricularia*, **411**.  
Trenches, against locusts, **170, 307, 373, 374**.  
*Trialeurodes vaporariorum*, in Britain, **69, 326** ; on beans in Hawaii, **67** ; on *Lantana camara* in Morocco, **427** ; in Tasmania, **137** ; on greenhouse tomatoes, **137, 326** ; influence of soil minerals on infestation of plants by, **173** ; parasite and biological control of, **67, 69, 326, 327** ; DDT sprays against, **67, 69** ; fumigation against, **326, 327**.  
*Triaspis vestitica*, parasite of *Anthonomus vestitus* in Peru, **76**.  
*Tribolium*, measures against, in stored grain in Mysore, **16, 17** ; infesting maize meal in soap powder, **410**.  
*Tribolium castaneum*, fumigation against, in imported ground-nuts and cottonseed meal in Canada, **30** ; in cotton seed in Queensland, **273** ; DDT against, in stored grain in U.S.A., **178**.  
*Tribolium confusum*, in cottonseed meal in Argentina, **66** ; pine oil preventing infestation of soap powder by, **410** ; toxicity of insecticide deposits to, **292** ; changes in susceptibility of pupae of, to chlorpicrin, **57**.  
Tributyl Phosphate, as solvent for DDT, **85**.  
Trichloroacetoneitrile, fumigation tests with, **425**.  
 $\beta\beta\beta$ -Trichloro- $\alpha$ bis(chlorophenyl) - ethane (see DDT).  
Trichlorethylene, doubtful value of mixture containing, for fumigating bulk wheat, **414** ; in penetrant mixture for sprays against cocoons of *Cydia pomonella*, **406, 407** ; as solvent for DDT, **85**.  
*Trichogramma*, parasite of Lepidoptera in Italy, **282, 380**.  
*Trichogramma evanescens*, in Bulgaria, **385** ; in Germany, **74, 349, 352** ; in Italy, **378** ; in Poland, **27, 28** ; parasite of *Acantholyda* spp., **27, 28, 349** ; parasite of *Atherigona quadripunctata*, **378** ; parasite of Lepidoptera, **74, 352, 385** ; effects of temperature on development of, **343** ; encouragement of, in forests, **28**.  
*Trichogramma minutum*, in Australia, **220** ; in Barbados, **22** ; in Hawaii, **220** ; in Mexico, **387, 388** ; in Mysore, **96** ; in Peru, **76** ; introduced into Spain, **152** ; in Washington, **300** ; use of, against *Gnorimoschema operculella* in stored potatoes, **152** ; use of, against sugar-cane moth borers, **22, 96, 387, 388** ; bionomics and rearing of strains of, in eggs of *Sitotroga*, **152** ; parasitising other Lepidoptera, **76, 220, 300**.  
*Trichogramma pretiosum*, parasitising *Alsophila pometaria* in winter in Connecticut, **361** ; rearing of strains of, in eggs of *Sitotroga* in Spain, **152**.  
*Trichomma*, parasite of *Ancylys selenana* in Italy, **380**.  
*Trichopria cubensis*, hyperparasite of *Diatraea saccharalis* in Brazil, **169**.  
*trichosterna*, *Lepidiota*.  
*tricinctus*, *Syrphus*.  
Triethanolamine, compound of dinitro-o-cyclohexylphenol (*q.v.*) and, **50**.  
Triethanolamine Oleate, in DDT spray formula, **328**.  
*trifasciata*, *Mocis*.  
*Trifidaphis phaseoli*, ant associated with, on squash in U.S.A., **125**.  
*trifolii*, *Apion* (*Curculio*) ; *Hadena* (*Mamestra*).  
*Trifolium* (see Clover).  
*trifurcata*, *Ceratomya*.  
*trimaculata*, *Macropsis*.  
Trinidad, pests and diseases of cacao in, **88, 89, 376** ; natural enemies and biological control of cacao pests in, **89** ; new Coccids on coffee in, **376** ; *Tomaspsis saccharina* on sugar-cane in, **85, 141, 427** ; introduction of fungus infesting *T. saccharina* into Br. Guiana from, **427**.  
Trinitrodiphenylamine, toxicity of, to *Cydia pomonella*, **126**.  
*Triphleps* (see *Orius*).  
*trisectus*, *Crambus*.  
Trisodium Phosphate, as stabiliser for oil emulsions, **246**.  
*Trissodon puncticollis*, on ground-nuts in Queensland, **315**.  
*Trissolcus*, parasite of *Podisus nigrolimbatus* in Chile, **7**.  
*Tristania conferta*, *Phylactophaga euca-lypti* on, in New South Wales, **218**.  
*tristigmus*, *Euschistus*.  
*tristis*, *Anasa* ; *Macropsis*.  
*tristriatus*, *Eriophyes*.  
*tritici*, *Contarinia*.  
*tritoma*, *Loxotropa*.  
Triton, as an emulsifier, **32**.  
Triton B-1956, as an emulsifier, **92, 406, 407**.  
Triton X-100, as an emulsifier, **183, 259**.  
Tritox, **425**.  
*trogodytes*, *Diadromus*.  
*Trogoderma granarium* (*khapra*), measures against, in stored cereals in India, **16, 68, 69** ; bionomics of, **68, 69** ; measures and experiments against, **16, 210**.  
*Troilus luridus*, predacious on *Bupalus piniarius* in Germany, **74**.



*truculenta*, *Bactra*.  
*tryoni*, *Dacus* (*Chaetodacus*, *Strumeta*) *ferrugineus*.  
 Trypetids, paper on biology and identification of larvae of, 376.  
 Trypsin, fruit-fly baits prepared with, 144.  
*Tsuga*, Geometrid on, in Connecticut, 356.  
*tuberis*, *Epitrix*.  
*Tuberolachnus viminalis* (see *Lachnus salignus*).  
*tuberosa*, *Sarcophaga*.  
 Tuberoze (see *Polianthes tuberosa*).  
 Tulip, new Aphid on stored bulbs of, in Britain, 205 ; *Myzus persicae* on, in Switzerland, 382.  
 Tulip Oak, Brown (see *Tarrietia argyrodendron*).  
 Tulip Oak, Red (see *Tarrietia argyrodendron peralata*).  
*tumidifrons*, *Labops*.  
 Turf, Tipulids in, in Britain, 188, 223 ; ants damaging, in New South Wales, 371 ; *Odontria zealandica* in, in New Zealand, 14 ; *Lachnosterna* spp. in, in Ontario, 10 ; new Coccid damaging, in Sudan, 68 ; insects damaging, in U.S.A., 250, 357, 360, 361, 363, 364, 394 ; lead arsenate and injury to, 14.  
*turonellae*, *Pimpla*.  
 Turkey, pests of cotton in, 61 ; *Ips sexdentatus* on spruce in, 39, 40.  
 Turkeys, dinitro-o-cresol dust barriers not harmful to, 128.  
 Turnip, *Phyllotreta australis* on, in Australia, 243 ; pests of, in Britain, 208, 209, 303 ; pests of, in Canada, 34, 97 ; pests of, in Denmark, 348 ; Aphid on, in greenhouse in U.S.A., 182.  
 Turnip-seed Weevil (see *Ceuthorrhynchus assimilis*).  
 Turpentine, in mixture against Diptera in rice seed-beds, 353 ; in DDT spray mixture, 416.  
 Tween 20, 129, 403.  
 Two-spotted Mite (see *Tetranychus bimaculatus*).  
*Typhlocyba inscripta* (see *Cicadella stellularata*).  
*Typhlocyba pomaria* (White Apple Leafhopper), DDT against, in Canada, 98.  
*Typophorus viridicyaneus*, distribution and food-plants of, in U.S.A., 23, 391.  
*Tyria jacobaeae*, predators preventing establishment of, against *Senecio jacobaea* in Australia, 220.  
 Tyroglyphids, revision of, 168.  
*Tyroglyphus farinae*, factors affecting abundance of, in stored grain and flour in Britain, 209, 210 ; measures against, 210.

*Tyrophagus putrescentiae*, treatments against, in fungus cultures in Australia, 193.

## U.

Uganda, Coccids on coffee and *Hydnocarpus* in, 322 ; cotton pests in, 213, 340 ; *Lygus* spp. on other plants in, 213.  
*ulmi*, *Haltica* (*Altica*) ; *Lepidosaphes*.  
*ulmi*, auct., *Oligonychus* (see *Paratetranychus pilosus*).  
*Ulmus americana*, 34, 412. (See Elm.)  
 Ultra-violet Rays, effect of, on DDT spray deposits, 177.  
 Ultra-wet, 361.  
*umbraculatus*, *Oxycanus*.  
*Unaspis citri*, on *Citrus* in Argentina, 65, 66 ; *Epitragus similis* predacious on, 66.  
*undalis*, *Hellula* (*Oebia*).  
*undata*, *Silpha* (*Blitophaga*).  
*undecimpunctata*, *Diabrotica*.  
*undulata*, *Phyllotreta* ; *Sinea*.  
*unicolor*, *Conops*.  
*unicolor*, auct., *Byturus* (see *B. rubi*).  
 Union of Soviet Socialist Republics, *Lixus subtilis* on beet in, 347 ; cereal pests in, 345, 346 ; *Agromyza cicerina* on *Cicer arietinum* in, 148 ; *Hoplocampa brevis* on pear in, 197 ; *Psylliodes affinis* on potato in, 41 ; *Locusta migratoria migratoria* in, 343, 344, 423 ; Orthoptera attacking greenhouse vegetables in, 346 ; beneficial insects in, 197, 423 ; books on pests in, 40, 41, 304, 313.  
*unipuncta*, *Cirphis*.  
*uniseta*, *Voriella*.  
 United States of America, pests of forest and shade trees in, 34, 35, 48, 59, 79, 121, 177, 259, 269, 356, 360, 361 ; pests of leguminous crops in, 121, 171, 232, 425 ; stored-product and household pests in, 128, 178 ; handbook of pests and diseases of vegetables in, 376 ; distribution of *Asterolecanium arabisidis* in, 325 ; distribution of *Macropsis* spp. on *Prunus* in, 401, 402 ; co-operation between Mexico and, against *Platyedra gossypiella*, 182 ; *Popillia japonica* and its biological control in, 51, 128, 261, 268, 337, 338, 356, 357, 361, 389, 390 ; study of species of *Pulvinaria* in, 321, 322 ; survey of data on *Quadraspidiotus perniciosus* in, 304 ; distribution of *Typophorus viridicyaneus* in, 23, 391 ; diseases of Lepidoptera in, 51 ; parasites of Lepidoptera in, 139, 294,

**397** ; modification of regulations on importation of maize into, from Canada, **364** ; risk of spread of *Aleurocanthus woglumi* from Mexico into, **77** ; legislation restricting importation of plants, etc., into Britain from, **194** ; *Plodia interpunctella* imported into Canada in wheat from, **30** ; *Trichogramma* spp. introduced into Spain from, **152** ; residue tolerance for DDT on fruit in, **110** ; directory of pest control in, **301**. (See also under the various States.)

*urbana*, *Ctenolepisma*.

Urea and Uric Acid, in baits for *Rhagoletis cerasi*, **144**.

*urichi*, *Liothrips*.

*urticae*, *Aglais* (*Vanessa*) ; *Tetranychus* (see *T. telarius*).

Uruguay, *Coccinella ancoralis* in, **19** ; *Pantomorus xanthographus* in, **8**.

*usitata*, *Cerosomyia*.

*Ustilago zeae*, *Popillia japonica* favouring, on maize in New York, **337**.

Utah, Aphids on squash in, **125** ; *Forficula auricularia* in, **411** ; Mirids on lucerne and grasses in, **44**, **125**, **126** ; birds and lizard destroying noxious insects in, **125**, **400**, **411**.

*utahensis*, *Closterocerus*.

*uvae*, *Diaspidiotus*.

*uzeli*, *Gynaikothrips*.

## V.

*v-flavum*, *Oinophila*.

*vaccinii*, *Eriophyes* ; *Mineola*.

*vagella*, *Homoeosoma*.

Valeric Acid, in baits for *Popillia japonica*, **261**.

$\gamma$ -Valerolactone, as solvent for DDT, **85**.

*valida*, *Halticotoma*.

*Vanessa atalanta*, tests of azobenzene against, in Britain, **190**.

*Vanessa urticae* (see *Aglais*).

*vaporariorum*, *Trialeurodes*.

*variabilis*, *Cimbex* (see *C. lutea*) ; *Lacon* ; *Laora*.

*variana*, *Acleris*.

*varians*, *Cyrtopeltis* (see *Engytatus geniculatus*).

*varicornis*, *Physcus*.

Variegated Cutworm (see *Peridroma saucia*).

*variiballeatus*, *Goryphus*.

*variolarius*, *Euschistus*.

*varivestis*, *Epilachna*.

*Vasates cornutus*, on peach in California, **325**.

*Vasates destructor* (on tomato), in Arizona, **167** ; in Hawaii, **66**.

*vastatrix*, *Phylloxera* (see *P. vitifoliae*).

Vatsol K, **33**.

Vegetable Marrow, *Apomecyna histrio* on, in Queensland, **274**.

Velsicol AR-60 (mainly methylnaphthalenes), emulsified solution of benzene hexachloride in, **183** ; uses of, as solvent for DDT, **124**, **184**, **258**, **405** ; in DDT dusts, **254**, **263**.

*venalba*, *Borolia*.

Venezuela, lists of pests in, **18**.

*venialis*, *Marasmia*.

*venosatus*, *Proceras* (*Diatraea*).

Ventox, **424**, **425**.

*ventricosus*, *Pediculoides*.

*Venturia inaequalis* (Apple Scab), in England, **95** ; in France, **138** ; in New York, **228** ; new mite feeding on, in Nova Scotia, **412** ; sprays against, **95**, **228**.

Veratrin, dusting with, against insects, **28**.

*verbasci*, *Anthrenus*.

*Verbascum thapsus*, *Euschistus* spp. on, in Virginia, **250**.

*verbena*, *Eurytoma*.

*vernalis*, *Tiphia*.

*versatilis*, *Chelonus* (*Chelonella*).

*versicolor*, *Meteorus*.

*vestitica*, *Triaspis*.

*vestitus*, *Anthonomus*.

Vetches, not damaged by *Heteronychus sanctae-helenae* in New South Wales, **191** ; *Macrosiphum onobrychis* on, in Rumania, **286** ; *Cydia nigricana* on, in Washington, **300**.

*vetusta*, *Hemerocampa*.

Viburnum, Aphids on, **39**, **380**.

*Vicia* (see Vetches).

*Vicia faba* (see Broad Beans).

*vicina*, *Musca domestica*.

Victoria, *Chortocetes terminifera* in, **135**, **416** ; orchard pests in, **159**, **160**, **368**, **369**, **416** ; pests of vines in, **132**, **162** ; pests of stored wheat in, **302**, **414** ; termites in timber in, **314** ; biological control of *Hypericum perforatum* in, **161**.

*viuata*, *Itoplectis* (*Pimpla*).

*vigintioctopunctata*, *Epilachna*.

*vigintiquatuorpunctata*, *Subcoccinella*.

*viminalis*, *Bombycia* ; *Tuberolachnus* (see *Lachnus salignus*).

Vine, Grape, pests of, in Australia, **132**, **162** ; *Tetranychus telarius* on, in Britain, **189** ; *Erythroneura* on, in Canada, **98** ; pests of, in Chile, **8**, **19**, **354** ; *Eriophyes vitis* on, in Czechoslovakia, **101** ; pests of, in France, **278**, **289** ; *Aonidiella comperei* on, in Haiti, **322** ; *Pulvinaria vitis* on, in Italy, **322** ; not attacked by *T. telarius* in Italy, **287** ; *Phylloxera*

- vitifoliae* on, in Peru and Mexico, **21**, **22**; *T. telarius* on, in Rumania, **286**; pests of, in Spain, **149**, **270**; pests of, in Switzerland, **144**, **145**, **147**, **198**, **322**; pests of, in U.S.A., **53**, **111**, **322**, **361**; varieties of, resistant to *Phylloxera*, **21**, **22**; identity of species of *Pulvinaria* on, **321**; **322**; not injured by azobenzene, **189**. (See Grapes.)
- Vine Moths (see *Clysiana ambiguella* and *Polychrosis botrana*).
- Vinegar, in baits for moths, **144**, **195**.
- vinitor*, *Nysius*.
- violaceum*, *Callidium*.
- virescens*, *Heliothis*.
- virgata*, *Ferrisia*.
- virgifera*, *Diabrotica*.
- Virginia, pests of leguminous crops in, **250**, **264**, **405**; orchard pests in, **248**, **249**, **263**, **264**, **402**; Phymatid attacking bees in, **392**; natural enemies of *Chalcodermus aeneus* in, **405**.
- viridana*, *Tortrix*.
- viridicyaneus*, *Typophorus*.
- viridis*, *Tettigella* (*Tettigoniella*); *Xerophloea*.
- viridula*, *Nezara*.
- viridulus*, *Eulophus*.
- Virus Diseases (in plants\*), **419**; relation of Aphids to, **4**, **86**, **148**, **156**, **157**, **162**, **167**, **171**, **172**, **173**, **188**, **200**, **204**, **205**, **206**, **207**, **229**, **253**, **254**, **298**, **300**, **301**, **312**, **350**, **381**, **382**, **419**; relation of Aleurodids to, **87**; relation of Coccids to, **88**, **89**; relation of Jassids to, **97**, **162**, **297**, **396**, **401**, **426**; relation of *Perkinsiella saccharicida* to, **368**; relation of Thysanoptera to, **65**, **114**, **137**, **402**; mechanical transmission of, **86**, **97**, **171**, **172**, **200**, **206**, **312**, **419**, **426**; equipment for applying dusts in transmission studies of, **200**.
- vitalis*, *Amblyteles*.
- Vitex negundo*, uses of leaves of, against stored-product pests in Mysore, **16**, **17**.
- vitiensis*, *Perkinsiella*.
- vitifoliae*, *Phylloxera* (*Peritymbia*).
- Vitis*, *Pulvinaria innumerabilis* on, in U.S.A., **322**. (See Vine, Grape.)
- vitis*, *Eriophyes*; *Pulvinaria*.
- vittata*, *Diabrotica* (see *D. melanocephala*).
- vittatum*, *Phaulacridium*.
- vittiger*, *Dichroplus*.
- Volcanic Ash (see Friarite).
- Volumnus obscurus*, bionomics and control of, on coffee in Fr. Equatorial Africa, **225**.
- vorax*, *Anthrenus*.
- Voriella uniseta*, parasite of *Tortrix postvittana* in Victoria, **162**.
- vosseleri*, *Lygus*.
- vulgaris*, *Cremnops* (*Bracon*); *Zenillia* (*Phryxe*).
- vulpinus*, *Dermestes* (see *D. maculatus*).
- vuteria*, *Sesamia*.

## W.

*walkeri*, *Conistra*.

Walnut, *Cydia pomonella* on, in Chile, **20**; Eriophyid on, in Czechoslovakia, **101**; *C. pomonella* on, in Switzerland, **145**; *C. pomonella* on, in France, **195**; *Tetranychus telarius* not attacking, in Italy, **287**; pests of, in U.S.A., **115**; retarded development of *Trogoderma granarium* on nuts of, **69**.

Walnut Aphis (see *Chromaphis juglandicola*).

Walnut-shell Flour, as carrier for dusts, **81**, **318**.

Washington, *Hylemyia cilicrura* on seedling conifers in, **298**; pests of crucifers in, **299**, **410**; Jassid transmitting virus disease of lucerne in, **297**; orchard pests in, **131**, **297**, **298**, **334**, **406**; pests of small fruits in, **130**, **298**; pests of peas in, **268**, **297**, **300**; *Epitrix* spp. on potato in, **296**, **297**; *Hadrobregmus gibbicollis* in timber in, **267**; parasites and biological control of *Cydia nigricana* in, **297**, **300**.

Wasps, toxicity of azobenzene to, **190**.

Water, Hot, against ants, **364**; peach stones treated with, against *Ephestia figulilella*, **13**; treatment of crocus corms with, against *Rhizoglyphus echinopus*, **414**.

Water Glass (see Sodium Silicate).

Watermelon, *Cecidomyia citrulli* on, in Arizona, **408**; *Margaronia indica* on, in Queensland, **274**; weevils on, in Senegal, **427**.

Webworm, Beet (see *Hymenia recurvalis* and *Loxostege sticticalis*).

Webworm, Garden (see *Loxostege similalis*).

Webworm, Sod (see *Crambus*).

Wetsit, **35**, **158**.

Wheat, *Epilachna* on, in Abyssinia, **377**, **378**; *Dyscinetus gagates* on, in Argentina, **413**; pests of, in Australia, **190**, **244**; pests of, in Britain, **34**, **164**, **188**; pests of, in Canada, **10**, **97**, **269**, **338**, **365**; pests of, in Czechoslovakia, **100**, **101**, **104**; *Orphanina scutata* on, in France, **137**; pests of,

\* These references are also indexed under the individual plants infected.



- in Italy, **378**; *Syringopais temperatella* on, in Palestine, **273**; *Aphis maidis* on, in Rumania, **148**; *Silpha undata* on, in Switzerland, **146**; pests of, in U.S.A., **23, 84, 127, 232, 250, 338**; types of injury to, by *Cephus* spp., **10**; effect of defoliation by grasshoppers on, **365**; effect of, on wireworm populations, **24, 116**; varieties and times of sowing of, in relation to pests, **23, 190, 232, 338**; Aphid killed by selenium taken up by, **175**; damaged by insecticides, **418**.
- Wheat (Stored), pests in, and their control, **16, 30, 68, 69, 168, 178, 191, 192, 209, 210, 245, 302, 386, 414**.
- Wheat Bulb Fly (see *Hylemyia coarctata*).
- Wheat Midge (see *Sitodiplosis mosellana*).
- Wheat-stem Sawfly (see *Cephus cinctus*).
- Wheel-bug (see *Arilus cristatus*).
- Whiteflies, transmitting infectious chlorosis of *Sida*, **87**; natural enemies of, **67, 69, 77, 187, 427**; classification and new species of, **96, 186**.
- Whitefly, Citrus (see *Dialeurodes citri*).
- Whitefly, Greenhouse (see *Trialeurodes vaporariorum*).
- Willow (*Salix*), *Pinnaspis minor* on, in Chile, **354**; pests of, in Czechoslovakia, **102**; *Stilpnotia salicis* on, in Nova Scotia, **302**; *Morrisonia confusa* on, in U.S.A., **409**.
- Wilt Disease, in Lepidoptera, **51**.
- Wind, carriage of insects by, **28, 109, 132, 198, 236**; effect of, on flight of Aphids, **382**; mites spread by, **32, 287**.
- Wine, in bait for *Cydia pomonella*, **246**.
- Wine Casks, Tineids damaging, **71**.
- Wireworms (Elaterid Larvae), populations of, in relation to crops, **24, 116**; sowing methods to offset damage to oats by, **5**; damaging forest seedlings, **309**; measures against, **10, 117, 358, 367**; identification of, in Kentucky, **232**.
- woeberiana*, *Enarmonia* (*Grapholitha*).
- woglumi*, *Aleurocanthus*.
- Wood Ash, as a carrier for pyrethrum dust, **225**.
- woodi*, *Acarapis*.
- Woodlice, killed by DDT dust, **69, 310**. (See *Armadillidium*.)
- Wool (baled), clothes moth infesting, in New York, **259, 260**.
- Woollen Cloth (see Textiles).
- Woolly Apple Aphis (see *Eriosoma lanigerum*).
- X.**
- Xanthandrus comtus*, predacious on noxious insects in Italy and Sicily, **282, 380, 420**; parasite of, **282**.
- Xanthium pungens*, factors affecting biological control of, in Australia, **220**.
- xanthographa*, *Signiphora*.
- xanthographus*, *Pantomorus*.
- xanthomelaena*, *Galerucella* (see *G. luteola*).
- Xanthone, effect of addition of, to DDT sprays on infestation of apple by mites and *Cydia pomonella*, **264**.
- Xanthopastis timais*, bionomics and control of, on Amaryllidaceae in Brazil, **105**.
- Xanthopimpla stemmator*, introduced parasite of sugar-cane moth borers in Mauritius, **1**.
- Xenidea picticornis*, on potato in Queensland, **243**.
- Xenoschesis fulvipes* (parasite of *Acantholyda* spp.), in Czechoslovakia, **330**; in Germany, **330, 349**.
- Xerophloea viridis*, not transmitting yellow wilt of beet in Argentina, **426**.
- Xestobium rufovillosum*, **305**.
- Xyleborus fornicatus fornicator*, on tea in Ceylon, **2**.
- Xylene (Xylol), action of, in cockroaches, **57**; as solvent for DDT, **85**; atomised spray of DDT in, **397**; emulsified solution of DDT in, **32, 48, 221, 253, 258, 259, 397, 398**; increasing efficiency of DDT dusts, **254**; solutions and emulsified solutions of other organic insecticides in, **119, 120, 373**; cotton plants injured by, **397**.
- Xylocopa*, in stored bamboo in India, **90**.
- Xylonomus filiformis*, parasite of *Ergates faber*, **332**.
- Y.**
- Yam (*Dioscorea*), *Schistocerca gregaria* on, in Gold Coast, **90**; effect of interplanting cotton with, **342**.
- Yam Bean (see *Pachyrrhizus*).
- Yellow-winged Locust (see *Gastrimargus musicus*).
- Yezabura malifoliae*, auct. (see *Anuraphis roseus*).
- Ylang-ylang (see *Cananga odorata*).
- Yorkshire Fog (see *Holcus lanatus*).
- yothersi*, *Paratetranychus*.
- ypsilon*, *Agrotis*.
- Yucca filamentosa*, *Halticotoma valida* on, in Maryland, **32**.

## Z.

*Zabrotes subfasciatus* (see *Spermophagus*).

*Zapachia*, 427.

*zealandica*, *Odontria*.

Zebra Caterpillar (see *Ceramica picta*).

*Zelus renardii*, predacious on cotton insects in Arizona, 396.

*zemiods*, *Mometa*.

*Zenillia caesar*, Lepidopterous hosts of, in N. America, 139; bionomics of, parasitising *Pyrausta nubilalis*, 139, 140; *Exorista nigripalpis* probably identical with, 139.

*Zenillia confusionis*, parasite of *Crambus* in U.S.A., 139; *Exorista nigripalpis* possibly identical with, 139.

*Zenillia vulgaris*, parasite of *Pieris brassicae* in Germany, 352.

Zerlate (see Zinc Dimethyl Dithiocarbamate).

Zinc, sheets of, as barriers against locusts, 307.

Zinc Chloride, not protecting bamboo culms against insects, 92.

Zinc Dimethyl Dithiocarbamate, in mixed dusts and sprays against potato pests, 229.

Zinc Nicotinyl Fluosilicate, in dust against Aphids, 254.

Zinc Oxide, and lime-sulphur, causing injury to oranges, 140, 141.

Zinc Sulphate, spraying with, against pecan rosette, 54, 266; and DDT, 54, 266; and lead arsenate, 54; as "safener" for lead arsenate, 266, 372, 401; and lime, 372, 401; and lime-sulphur, effects of, on *Citrus*, 141.

*zinckenella*, *Etiella*.

*Zinnia*, *Eugaster loricatus* damaging, in Eritrea, 308.

*Zizania aquatica*, Aphid on, in New Brunswick, 268.

*Zizera* (*Zizeera*, *Zizina*) *labradus*, on beans and lucerne in Queensland, 243, 272.

*zonatus*, *Leptoglossus*.

*Zygrita diva*, bionomics of, in Queensland, 272, 316.



## NOTICES.

---

Secretaries of Societies and Editors of Journals willing to exchange their publications with those of the Institute are requested to communicate with the Director. Authors of papers on economic entomology, whether published in entomological journals or not, are invited to send reprints to the Director for notice in the *Review*.

The Annual Subscription, *in advance*, to Volume 37 of the *Review*, Series A (Agricultural), is 40s. post free; Series B (Medical and Veterinary), 20s. post free. Prices of Back Volumes on application.

Orders and Subscriptions should be sent to the Director, Commonwealth Institute of Entomology, 41, Queen's Gate, London, S.W.7, or through a bookseller.



---

Printed under the authority of HIS MAJESTYS STATIONERY OFFICE  
by the South Essex Recorders, Ltd., Ilford.

(1455) Wt. P8/1804 5/40 S.E.R. Ltd. Gp. 432.